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AUTHOR Hewitt, Clifford A., Comp.; McKinstry, Herbert A., Comp.
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ABSTRACT

This index provides a topical taxonomy of media which have been selected for their relevance in the teaching of materials science and engineering. The index is keyed to a matrix which matches topical and/or class material with six classifications of media: print, 16mm film, super 8 film, slide/tape, videotape, and other (including interactive computer programs, and overhead transparencies). The index also contains the names and addresses of sources, and a list of media by materials classification. (WBC)

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EMMSE MEDIA INDEX

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Compiled and Edited
by

Clifford A. Hewitt

and

Herbert A. McKinstry

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PROJECT COMMITTEE AND STAFF

The entire scope of EMMSE is under the oversight of the Advisory Committee listed below. The composition of the Committee is such as to facilitate liaison to important segments and institutions within the Materials Science and Engineering community, and to expedite input from the many sources. As such, it represents a mixture of disciplines and agencies: physics, chemistry, metallurgy, ceramics, polymer science; industry; large universities and small colleges; a major society and a federation of societies. It is hoped that most persons interested in this activity will have a sympathetic advocate within the committee.

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ADDENDA TO SOURCE LIST

Buehler
 Buehler, Ltd.
 Advertising Department
 P.O. Box 1459
 Evanston, IL 60204

For source BM see
 Bureau of Mines

CORRECTIONS

pp. 64 & 180, Slide/Tape Column

Chemistry of Iron and
Chemistry of Steel (B)

Source should be AIS

FOREWORD

This INDEX is one of the first 'products' of EMMSE (Educational Modules for Materials Science and Engineering) which is a project supported by the National Science Foundation.

The overall goal of EMMSE is the development, evaluation, dissemination, and promotion of innovative instructional material for the teaching of materials science and engineering. The major emphasis is on the preparation, review and testing of print modules which are designed for organization into curricula with individualized as well as traditional teaching methods in mind. As the program matures after a number of years, these modules will be analogous to a collection of building blocks from which custom-made courses in materials science and engineering can be constructed with great flexibility at a number of different levels.

This INDEX provides a carefully ordered topical taxonomy of all kinds of media which have been selected for their relevance as support material in the teaching of materials science and engineering. Some of the media will be closely related to or even integrated with EMMSE's new print modules. The rest will serve as supplementary or enrichment material. Over a period of years, much of the media will be officially reviewed and abstracts of the reviews will be included in future editions of the INDEX, increasing its value to the user. While this is the first published edition of the INDEX, it is anticipated that it will be regularly revised and republished on a biennial basis.

HOW TO USE THE MEDIA INDEX

THE MATRIX

This INDEX is keyed to a MATRIX developed as part of the EMMSE project. The current form of the MATRIX is found on pages v and vi. You will note that the vertical axis of this orthogonal representation is topical and numbered from 1 to 40. The other is made up of classes of materials and is lettered from A to K.

The MATRIX serves several purposes. First, it provides the order of topical entries under the heading "Subject Area" in the INDEX. The numbers of the "Subject Areas" correspond with the numbers on the respective axis of the MATRIX, making for easy identification and location. Second, the letters marking the classes of materials are used to identify units relating specifically to one or another such class. These letters appear in parentheses at the end of the title for each entry. At the back of the INDEX there is a separate section where titles are listed alphabetically according to materials classification as well as various media within each classification.

The MATRIX also offers a quick overview of the concentration or lack of media in any topical and/or class of material area. The number of entries for a specific topic and class of materials is entered in the appropriate block of the MATRIX. No entry, of course, means an absence of support material in that area.

THE INDEX COLUMNS

In addition to the heading labeled Subject Area, the INDEX provides six columns across the page for the listing of media, as follows:

1. Print
Only print media of a modular format are listed. Eventually all entries here, as in most other cases, will have passed through the EMMSE review system. Many of these entries will be print modules produced through the EMMSE program.
2. 16 MM Film
These films are in the familiar reel to reel format. Currently, among the available media, this type was found to predominate.
3. Super 8 Film
Virtually all of these are in silent cassette format accommodated chiefly by the Technicolor projectors. A few have sound tracks.
4. Slide/Tape
Many of these are combinations of the two media, i.e. slides (or filmstrips) with audio tapes. Some units are of one or the other medium only.
5. Video Tape
Some problems of compatibility may be encountered here. There seems to be a growing preference, however, for the U-matic cassette format. If you do not have this type of equipment, please ask the supplier whether the video tape you wish to use is available in the format you need.

6.

Among these are interactive computer programs, overhead transparencies, planned or packaged laboratory experiments, etc.

USING THE INDEX

The INDEX can be used to locate virtually all modular units in any media which relate to the subject area one has selected. The subject area is first located within the MATRIX and the related number noted. If one then turns to that number and subject area in the INDEX, the full panoply of available items in different media is seen simply by reading across and down the page or pages.

Important and useful data are provided for each entry in the INDEX. In addition to the class of material involved, the information includes the length and format of the unit, approximate academic level, terms applicable to its use, and the source from which it may be obtained. The names and addresses of these sources are listed alphabetically in the first appendix of the INDEX. Since EMMSE does not distribute any of the media, users of the INDEX should contact the source directly.

A sample entry together with a complete key to the coding is found on page iv.

As mentioned above, the second appendix contains an alphabetical listing of media by class of material. This is a convenient way of locating an item where the material is of primary consideration or where the title is known to the prospective user.

A REQUEST FOR YOUR PARTICIPATION

As the EMMSE program develops in the future and a review system is in full operation, there will be another section to the INDEX which will list alphabetically all reviewed material with an abstract of the review. The review will contain not only a brief description of the contents but also some evaluation of the unit as to quality and curricular definition. In the interim, between this and the next publication of the INDEX, it is expected that many of the most pertinent entries will be reviewed and that these reviews will appear in the new edition. This should make the INDEX a more effective tool.

The reviewing of this large number of items is an extremely time consuming process. The EMMSE Advisory Committee feels that it is a task which can be undertaken best as a community effort. It is our hope that users will supply this review data for any entry which is known or subsequently used by them. This service could provide many of the reviews needed for the next edition. For this process a review questionnaire has been attached as the last page of the INDEX.

A second questionnaire is included on which the user may want to indicate suggestions for changes and improvements in the INDEX. This first edition of the EMMSE INDEX should be considered an experimental test volume. Some changes in style, format and content will certainly appear in later editions. Your comments and suggestions are welcome and can be forwarded through the self-addressed prepaid forms provided.

KEY TO INDEX

AT	Audio tape	RP	Rental or purchase
B/W	Black and white	r/r	Reel to reel
Col	Color	SA	Special arrangement
F	Free	Sil	Silent
Fl	Free loan	Snd	Sound
FS	Filmstrip	TC	Technicolor cassette
OT	Overhead transparency	VT	Video tape
P	Purchase	*	Introductory
R	Rental	**	Advanced

SAMPLE ENTRY

Class of Materials → Ternary Diagrams ← Title
 Derived from Binaries
 Length → (A) ← Format
 6 min Snd Col
 Academic level → Source: PSU ← Distributor's address.
 (**) (R) ← in appendix
 Requirements for use (rent, sale, etc.)

ENMSE MATRIX

THIS MATRIX PROVIDES A GUIDE TO THE INDEX. THE NUMBERS RUNNING VERTICALLY DOWN THE LEFT SIDE CORRESPOND TO THE NUMBERS AT THE TOP OF THE PAGES IN THE INDEX, INDICATING THE LOCATION OF THE RESPECTIVE SUBJECT AREAS. THE LETTERS ACROSS THE TOP WILL BE FOUND IN PARENTHESES AFTER EACH MEDIA ENTRY, IDENTIFYING THE MATERIALS CLASSIFICATION. THE NUMBERS IN THE BLOCKS OFFER A QUICK OVERVIEW OF THE CONCENTRATION OR LACK OF AVAILABLE MEDIA THROUGHOUT THE INDEX.

Educational
Modules for
Materials
Science and
Engineering

BASIC SCIENCES

CHARACTERIZATION

SUBJECT AREA		MATERIALS (COMPOSITION)										
		ALL SOLIDS IN GENERAL	METALS & ALLOYS		CERAMICS, incl. cement	POLYMERS	ELECTRONIC MATERIALS	NON-CRYST. SOLIDS	WOOD & PAPER	COMPOSITES	BIOMATERIALS	OTHER
			FERROUS	NON-FERROUS								
		A	B	C	D	E	F	G	H	I	J	K
THERMO-DYNAMICS	SOLID STATE PHYSICS	1	19	2	1		15					
	CRYSTAL CHEMISTRY	2	44	2	2	3	4					1
	PHASE EQUILIBRIUM	3	34	13	10	1						
	THERMOCHEMISTRY	4	23		1	2						
	KINETICS	DIFFUSION	5	8		4	1					
		REACTIONS: MECHANISMS	6	8			1					
STRUCTURE	CRYSTAL	7	44	17	14	1	3	2				
	MICRO	8	13	15	16	1	3	1	1			
	DEFECT	9	12	10	10	1	1					
	SURFACES, INTERFACES	10	12	13	25	2	1					
CHEMICAL COMPOSITION	BULK	11	22	3	1	3						
	TRACE	12	12									
	NON-DESTRUCTIVE TESTING	13	1	2								
	INSTRUMENTATION	14	35	11	8	1	1					

SUBJECT AREA 1 - BASIC SCIENCES: SOLID STATE PHYSICS

MEDIA		
PRINT	.16 mm FILM	SUPER 8 FILM
<p><u>Strong Materials: Electrons and Waves (A)</u> (Section of Open University Course) Approx. 6 hr module, 104 pp. Source: H&R (*) (P)</p>	<p><u>Formation, Propagation, and Interaction of Solitons in Non-linear Dispersive Media (A)</u> 25 min Sll B/W Source: BTL (**) (FL)</p> <p><u>Hydrogen Atom as Viewed by Quantum Mechanics (A)</u> 13 min Snd Col Source: PSU (**) (R)</p> <p><u>The Structure of Atoms (A)</u> 12 min Snd Col Source: PSU (*) (R)</p> <p><u>Semi-Conductors: Part I (F)</u> 21 min Snd B/W Source: PSU (**) (R)</p> <p><u>Semi-Conductors: Part II: (F)</u> 22 min Snd B/W Source: PSU (**) (R)</p>	<p><u>Equipartition of Energy (A)</u> TC 4 min Sll Col Source: EFL (**) (P)</p> <p><u>Maxwell Speed Distribution (A)</u> TC 4 min Sll Col Source: EFL (**) (P)</p> <p><u>Molecular Vibrations--Using Models (A)</u> TC 4 min Sll Source: MLA (**) (P)</p> <p><u>Molecular Vibrations Using Models (A)</u> JC 4 min Sll Col Source: ACCC (*) (P)</p> <p><u>Symmetry in Molecules (A)</u> TC, r/r 4 min Sll Col Source: LBF (*) (P)</p> <p><u>Wave Packets in Periodic Potentials, Part I--Packets in a Perfect Crystal (A)</u> TC, r/r 4 min Sll B/W Source: EDC (**) (P)</p> <p><u>Wave Packets in Periodic Potentials, Part II--Packets Incident on a Perfect Crystal (A)</u> TC, r/r 4 min Sll B/W Source: EDC (**) (P)</p> <p><u>Wave Packets in Periodic Potentials, Part III--Scattering from Impurities (A)</u> TC, r/r 3 min Sll B/W Source: EDC (**) (P)</p> <p><u>Ferromagnetic Domain Wall Motion (B)</u> TC, r/r 4 min Sll Col Source: SET Q (**) (P)</p>

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Binding in Atoms, Molecules and Crystals (I) (A)</u> <u>Wave Mechanics</u> <u>Schrodinger Equation</u> <u>Hydrogen Atom and Hydrogen-like Atoms</u> 21 Slids 52 min tape Source: Ruoff & PC (**) (P)		<u>Laboratory Experiments in X-Ray Crystallography (A)</u> 21 experiments in 133 page booklet providing objectives, equipment and materials, procedures, and expected results Source: McGraw Hill (**) (P)
<u>Binding in Atoms, Molecules and Crystals (II) (A)</u> <u>Bonding of Atoms in Molecules and Condensed Phases</u> <u>Covalent Bonding</u> <u>Binding in Metals</u> <u>Secondary Bonds</u> <u>Polarization and Magnetization</u> 22 Slids 39 min tape Source: Ruoff & PC (**) (P)		<u>Solid State Structure and Reactions Series (A)</u> 12 0T" No. tape Source: ASM (**) (P)
<u>Electrons in Condensed Phases (I) (A)</u> <u>Electron Gas</u> <u>Quantized Electron Gas</u> <u>Electrons in a Periodic Potential</u> <u>Brillouin Zones</u> <u>Conductivity</u> 24 Slids 49 min tape Source: Ruoff & PC (**) (P)		
<u>Superconductivity: (A)</u> <u>Superconducting State and Fundamental Concepts</u> <u>Collective De Broglie Wave</u> <u>Magnetic Flux Quantization</u> <u>Type I vs. Type II Superconductors</u> <u>Fluxoid Pinning</u> 31 Slids 37 min tape Source: Ruoff & PC (**) (P)		
<u>Magnetism (B,C).</u> <u>Diamagnetism, Paramagnetism</u> <u>Ferromagnetism, Antiferromagnetism</u> <u>Ferrimagnetism</u> <u>Domains and Magnetism According to Domain Theory</u> <u>Magnetic Bubbles</u> 44 Slids 54 min tape Source: Ruoff & PC (**) (P)		

SUBJECT AREA 1 - BASIC SCIENCES: SOLID STATE PHYSICS

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
		<p><u>The Formation of a Barrier in a P-N Crystal (F)</u> TC 2 min S11 Col Source: SETCO (**) (P)</p> <p><u>The Formation of N-Type Crystals (F)</u> TC 2 min S11 Col Source: SETCO (**) (P)</p> <p><u>The Formation of P-Type Crystals (F)</u> TC 2 min S11 Col Source: SETCO (**) (P)</p> <p><u>Generation of Charge Carriers (F)</u> TC 1 min S11 Col Source: SETCO (**) (P)</p> <p><u>Light and Electrons (F)</u> TC 4 min S11 B/W Source: EBEC (*) (P)</p> <p><u>The P-N-P Crystal (F)</u> TC 2 min S11 Col Source: SETCO (**) (P)</p> <p><u>Recombination of Charge Carriers (F)</u> TC 1 min S11 Col Source: SETCO (**) (P)</p> <p><u>Rectification of Crystal Diodes (F)</u> TC 2 min S11 Col Source: SETCO (**) (P)</p> <p><u>The Transistor (F)</u> TC 2 min S11 Col Source: SETCO (*) (P)</p>

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<p>Electrons in Condensed Phases (I):</p> <p><u>Intrinsic Semiconductors</u> (F)</p> <p><u>Extrinsic Semiconductors</u> (F)</p> <p><u>P-N Junction</u> (F)</p> <p><u>Junction Transistor</u> (F)</p> <p><u>Lasers</u> (A)</p> <p>20 Slids 40 min tape Source: Ruoff & PC (**) (P)</p>		

SUBJECT AREA 2 - BASIC SCIENCES: CRYSTAL CHEMISTRY

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>Basic Principles in Chemistry</u> -Chemical Bonding (A)</p> <ol style="list-style-type: none"> <u>Bonding Between Atoms of the Same Element: Metals and the Metallic Bond</u> <u>Bonding Between Atoms of the Same Element: Non-Metals and the Covalent Bond</u> <u>Bonding Between Atoms of Different Elements: Metals and Non-Metals--The Ionic Bond</u> <u>Bonding Between Atoms of Different Elements--Non-Metals and Covalent Compounds</u> <u>Electronegativity, Polar Covalent Bonds, Polar Molecules, Hydrogen Bonds, and Coordinate Covalent Bonds</u> <p>Approx 2 hr each unit Slds or FS with AT and Workbook Source: CSC (*) (P)</p> <p><u>Crystallography: (A)</u> Book 1. <u>Packing: The Crystal as an Assembly of Spheres</u> Book 2. <u>Unit Cells and Space Lattices</u> Book 3. <u>Miller Indices: Representation of Planes and Directions</u> Book 4. <u>The Seven Crystal Systems</u> Book 5. <u>The Fourteen Bravais Lattices</u> Book 6. <u>Introduction to X-Ray Diffraction</u></p> <p>Programmed instruction books with hands-on materials Sold as a package Approx 3 credit course Source: ACC (*) (P)</p>	<p><u>Bragg Reflection (A)</u> 10 min Snd B/W Source: PSU (**) (R)</p> <p><u>Chemical Families (A)</u> 22 min Snd Col Source: PSU (*) (R)</p> <p><u>Considering Crystals (A)</u> 16 min Snd Col Source: PSU (*) (R)</p> <p><u>Crystals (A)</u> 24 min Snd Col Source: PSU (**) (R)</p> <p><u>Crystals--An Introduction (A)</u> 25 min Snd Col Source: BTL (*) (FL)</p> <p><u>Crystals and Their Structures (A)</u> 22 min Snd B/W Source: PSU (**) (R)</p> <p><u>Symmetry (A)</u> 10 min Snd Col Source: PSU (*) (R)</p> <p><u>Vanadium - A Transition Element (A)</u> 22 min Snd Col Source: PSU (**) (R)</p> <p><u>Vibration of Molecules (A)</u> 11 min Snd B/W Source: PSU (**) (R)</p>	<p><u>Bubble Model of a Crystal--Deformation and Dislocation (A)</u> TC 3 min S11 Col Source: EFL (*) (P)</p> <p><u>Bubble Model of a Crystal--Structure and Boundaries (A)</u> TC 2 min S11 Col Source: EFL (*) (P)</p> <p><u>Comparison of (Various) Crystal Structures (A)</u> TC 4 min S11 Col Source: SETCD (*) (P)</p> <p><u>Crystals and X-Ray Diffraction (A)</u> TC 4 min S11 B/W Source: MLA (**) (P)</p> <p><u>Diffraction of X-Rays by a Crystal (A)</u> TC 4 min S11 Col Source: EBEC (**) (P)</p> <p><u>The F. C. C. Crystal Structure (A)</u> TC min S11 Col Source: SETCD (*) (P)</p> <p><u>Molecular Motion in Condensed Phases (A)</u> TC 4 min S11 Col Source: MLA (**) (P)</p> <p><u>Properties of a Covalently Bonded Molecule (A)</u> TC 4 min S11 Col Source: EBEC (**) (P)</p> <p><u>Properties of an Ionic Compound (A)</u> TC 4 min S11 Col Source: EBEC (**) (P)</p>

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Atomic Arrangements (I) (A)</u> <u>Crystals and Lattices</u> <u>Crystallographic Directions</u> <u>Planes</u> <u>Packing of Atoms</u> 33 Slids 53 min tape Source: Ruoff & PC (*) (P)	<u>Amorphous and Molecular Structures (Lesson 7) Introduction to Materials Science (set of 16 VT's) (A)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	<u>Crystallography: (A)</u> Book 1. <u>Packing: The Crystal as an Assembly of Spheres</u> Book 2. <u>Unit Cells and Space Lattices</u> Book 3. <u>Miller Indices: Representation of Planes and Directions</u> Book 4. <u>The Seven Crystal Systems</u> Book 5. <u>The Fourteen Bravais Lattices</u> Book 6. <u>Introduction to X-Ray Diffraction</u> Hands-on materials with programmed instruction books Sold as a package Approx 3 credits Source: ACC (*) (P)
<u>Atomic Arrangements (II) (A)</u> <u>Symmetry and Properties</u> <u>Imperfections in Crystals</u> 24 Slids 42 min tape Source: Ruoff & PC (*) (P)	<u>Atomic Bonding (Lesson 3) Introduction to Materials Science (set of 16 VT's) (A)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	Laboratory Experiments in X-Ray Crystallography (A) 21 experiments in 133 page booklet providing objectives, equipment and materials, procedures, and expected results. Source: McGraw Hill (**) (P)
<u>Atomic Arrangements (III) (A)</u> <u>Diffraction by Crystals</u> 13 Slids 33 min tape Source: Ruoff & PC (*) (P)	<u>Atomic Coordination (Lesson 4) Introduction to Materials Science (set of 16 VT's) (A)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	<u>Solid State Structure and Reactions Series (A)</u> 12 OT No tape Source: ASM (**) (P)
<u>Atomic Arrangements Series* (A)</u> 6 Slids No tape Source: ASM (**) (P)	<u>Crystal Structure I (Lesson 5) Introduction to Materials Science (set of 16 VT's) (A)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	
<u>Binding in Atoms, Molecules and Crystals (II)</u> <u>Bonding of Atoms in Molecules and Condensed Phases (A)</u> <u>Covalent Bonding (A)</u> <u>Binding in Metals (B,C)</u> <u>Secondary Bonds (A)</u> <u>Polarization and Magnetization (A)</u> 22 Slids 39 min tape Source: Ruoff & PC (**) (P)	<u>Crystal Structure II (Lesson 6) Introduction to Materials Science (set of 16 VT's) (A)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	
<u>Crystals of Linear Macromolecules (A)</u> 8 AT's (running time-7.6 hours) 252 page manual (Approx. 5 weeks study time) Source: ACS (**) (P)	<u>Internal Structure (Lesson 1) Introduction to Materials Science (set of 16 VT's) (A)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	
<u>Crystal Structure (E)</u> 11 Slids No tape Col Source: SPE (**) (FL)		

SUBJECT AREA 2 - BASIC SCIENCES: CRYSTAL CHEMISTRY

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>Electronic Materials (P)</u> (Volume 4 of a five-part course on Materials Technology)</p> <p>Workbook and VTs 8 sessions, approx 2 weeks study Source: SL (*) (SA)</p>		<p><u>Solutions (A)</u> TC 3 min S11 Col Source: SUTH (*) (P)</p> <p><u>Structure of a Covalent Molecule CCl₄ (A)</u> TC 4 min S11 Col Source: EBEC (**) (P)</p> <p><u>Structure of an Ionic Crystal (A)</u> TC 4 min S11 Col Source: EBEC (**) (P)</p> <p><u>Sulphur Crystals (A)</u> TC 4 min S11 Col Source: LONG (*) (P)</p> <p><u>Symmetry in Molecules (A)</u> TC, r/r 4 min S11 Col Source: LBF (*) (P)</p> <p><u>Crystal Structure of Metals (B,C)</u> TC 5 min S11 Col Source: LBF (*) (P)</p> <p><u>Crystal Structures of Metals (B,C)</u> TC r/r 4 min S11 Col Source: Wiley (*) (P)</p> <p><u>The Germanium Crystal Lattice (F)</u> TC 1 min S11 Col Source: SETCO (*) (P)</p> <p><u>The Germanium Unit Cell (F)</u> TC 3 min S11 Col Source: SETCO (*) (P)</p> <p><u>Le Chatelier's Principle (O)</u> r/r 4 min S11 Col Source: SET U (**) (P)</p>

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Polymers (II): (E)</u> <u>Crystallinity in Polymers</u> 15 Slids 25 min tape Source: Ruoff & PC (***) (P)	<u>Electronic Materials (Volume 4</u> <u>of a five-part course on Mat-</u> <u>erials Technology) (F)</u> VT's and workbook 8 sessions, approx. 2 week's study Source: SL (*) (SA)	
<u>X-Ray Analysis (E)</u> 34 Slids No tape Source: SPE (***) (FL)	<u>Bonding and the Structure of</u> <u>Solids (A)</u> Approx. 40 min Snd B/W 3/4" Cassette Source: MBI (*) (P)	

SUBJECT AREA 3 - BASIC SCIENCES: THERMODYNAMICS (PHASE EQUILIBRIUM)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>Phase Diagrams and Micro-structure (A)</u> Approx 6 hr module, 56 pp Source: H&R (*) (P)</p> <p><u>Phase Equilibria (Volume 1 of a five-part course on Materials Technology) (A)</u> Workbook and VTs, 9 sessions, approx 2-3 weeks study Source: SL (*) (SA)</p> <p><u>Alloy Design, Using Second Phases (B,C)</u> Research review module, 24 pp Source: INCO (**) (F)</p> <p><u>Isothermal Transformation Diagrams of Nickel Alloy Steels (B,C)</u> Research review module, 44 pp Source: INCO (**) (F)</p> <p><u>Strengthening Mechanisms in Nickel-Base Superalloys (B,C)</u> Research review module, 28 pp Source: INCO (**) (F)</p>	<p><u>Crystal Growth Morphologies (A)</u> 17 min S11 Col Source: BTL (**) (FL)</p> <p><u>Diffusion of Liquids (A)</u> 11 1/2 min Snd B/W Source: PSU-EC (*)</p> <p><u>Equilibrium (A)</u> 24 min Snd Col Source: PSU (**) (R)</p> <p><u>Free Energy Curves and Binary Phase Diagrams (A)</u> 10 min Snd Col Source: PSU (*) (R)</p> <p><u>Gibbs Free Energy: Enthalpy and Entropy (A)</u> 11 min Snd Col Source: PSU (*) (R)</p> <p><u>Isothermal Sections with Simple Ternary Eutectic (A)</u> 7 min Snd Col Source: PSU (**) (R)</p> <p><u>Isothermal Sections with Solid Solutions (A)</u> 7 min Snd Col Source: PSU (**) (R)</p> <p><u>Reading Ternary Phase Diagrams (A)</u> 8 min Snd Col Source: PSU (**) (R)</p> <p><u>Temperature and Matter (A)</u> 15 min Snd Col Source: PSU (*) (R)</p> <p><u>Ternary Diagrams Derived from Binaries (A)</u> 6 min Snd Col Source: PSU (**) (R)</p>	<p><u>Gibbs Free Energy: Part I Enthalpy (A)</u> TC 6 min Snd Col Source: PSU (*) (R)</p> <p><u>Gibbs Free Energy: Part II Entropy (A)</u> TC 6 min Snd Col Source: PSU (*) (R)</p> <p><u>Liquid/Gas Equilibrium (A)</u> TC 4 min S11 B/W Source: LONG (*) (P)</p> <p><u>Melting Points (A)</u> r/r 3 min S11 Col Source: AIM (*) (P)</p> <p><u>Melting Temperature of a Pure Substance (A)</u> TC, r/r 4 min S11 Col Source: EFL (*) (P)</p> <p><u>Phase Change (A)</u> TC 4 min S11 Col Source: EBEC (*) (P)</p> <p><u>Phase Demonstration (A)</u> TC, r/r 1 min S11 Col Source: SET U (*) (P)</p> <p><u>Solid/Liquid Equilibrium (A)</u> TC 4 min S11 B/W Source: LONG (*) (P)</p> <p><u>Solution, Evaporation and Crystallization (A)</u> TC, r/r 3 min S11 Col Source: SET U (*) (P)</p> <p><u>Triple Point of Water (A)</u> r/r 4 min S11 Col Source: SET K (*) (P)</p>

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Phase Diagrams (I):</u> <u>Binary Systems (A)</u> <u>Nonequilibrium Transformations (A)</u> <u>Age Precipitation Hardening (C)</u> <u>Fe-C System (B)</u> 36 Slids 53 min tape Source: Ruoff & PC (*) (P)	<u>Multiphase Materials: Phase Diagrams (Lesson 14) Introduction to Materials Science (set of 16 VT's) (A)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	<u>Computer Calculations of Binary Phase Diagrams (A)</u> <u>Part I Case of Quasi-Regular Solutions</u> <u>Part II General Case</u> Interactive computer program Source: CL (*) (SA)
<u>Phase Diagrams (II):</u> <u>Segregation in Binary Alloys During Solidification (A)</u> 5 Slids 10 min tape Source: Ruoff & PC (**) (P)	<u>Structure, Bonding, and the Periodic Table (An Open University Course) (A)</u> 11 VT's each 25 min Snd B/W 3/4" Cassette Study book Source: H&R (*) (RP)	<u>Computer Calculations of Multi-Component Phase Diagrams (A)</u> Interactive computer program Source: CL (**) (SA)
<u>Strengthening Mechanisms (I) (A)</u> <u>Degree and Limits of Strength</u> <u>Weakness of Bulk Materials</u> <u>Strengthening Concepts</u> <u>Solute Strengthening</u> <u>Strain Hardening</u> <u>Strengthening by Grain Boundaries</u> 44 Slids 57 min tape Source: Ruoff & PC (*) (P)	<u>Thermodynamics (Part I) (A Two-Part Review Course) (A)</u> 20 VT's each 1 hour Snd B/W 3/4" Cassette 71 page study book Source: GSI (**) (RP)	12 OT No tape Source: ASM (**) (P)
<u>Strengthening Mechanisms (II)</u> <u>Strengthening at High Temperatures (A)</u> 16 Slids 37 min tape Source: Ruoff & PC (**) (P)	<u>Thermodynamics (Part II) (A Two-Part Review Course) (A)</u> 20 VT's each 1 hour Snd B/W 3/4" Cassette 71 page study book Source: GSI (**) (RP)	<u>Equilibrium Phase Diagrams (A lab experiment) (C)</u> Objective: To determine a eutectic phase diagram by cooling curves. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author. Source: JR (*) (F)
<u>The Formation of Ferromagnetic Domains (B)</u> 132 Frms FS 45 min Col 2 33 1/3 rpm discs Source: BTL (**) (FL)	<u>The Iron-Carbon System (Lesson 15) Introduction to Materials Science (set of 16 VT's) (B)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	
<u>Heat Treatment Series (B,C)</u> 9 Slids No tape Source: ASM (**) (P)	<u>Phase Equilibria (Volume 1 of a five-part course on Materials Technology) (A)</u> VT's and workbook 9 sessions, approx. 2-3 week's study Source: SL (*) (SA)	

SUBJECT AREA 3 - BASIC SCIENCES: THERMODYNAMICS (PHASE EQUILIBRIUM)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Ternary Phase Diagrams (A)</u> 7 min Snd Col Source: AEC (**) (FL)</p> <p><u>Elements of Hardening (B)</u> 15 min Snd B/W Source: PSU (**) (R)</p> <p><u>Ferromagnetic Domains:</u> <u>Part I Magnetism and Domains</u> <u>Part II How Domains are</u> <u>Formed (B)</u> 22 min Snd Col Source: BTL (**) (FL)</p> <p><u>Formation of Ferromagnetic</u> <u>Domains (B)</u> 40 min Snd Col Source: BTL (**) (FL)</p> <p><u>Martensitic Transformation of</u> <u>Nickel-Chromium-Steel (B)</u> 5 1/2 min Sil B/W Source: PSU-EC (**) (R)</p> <p><u>Metal Crystals (B,C)</u> 35 min Sil B/W Source: PSU (*) (R)</p> <p><u>Metal Crystals in Action (B,C)</u> 30 min Snd Col Source: ASM (*) (R)</p> <p><u>Transformation of Tin (C)</u> 9 min Snd B/W Source: PSU (**) (R)</p> <p><u>Crystalline Transformation (D)</u> 4 min Sil Col Source: PSU-EC (**) (R)</p>	<p><u>Phase Diagram for Bi-Cd Alloy</u> (C) TC, r/r 4 min Sil Col Source: Wiley (**) (P)</p> <p><u>Phase Diagram of an Alloy (C)</u> TC 4 min Sil Col Source: LBF (**) (P)</p>

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<p><u>Making Alloys-The Tricks of the Trade</u> (Section of Open University Course) (B,C)</p> <p>20 min AT cassette Tape only</p> <p>Source: H&R</p> <p>(*) (P)</p>	<p><u>The Anatomy of Equilibrium Diagrams</u> (A)</p> <p>Approx. 40 min Snd B/W</p> <p>3/4" Cassette</p> <p>Source: MBI</p> <p>(*) (P)</p> <p><u>To Crystallize or not to Crystallize?</u> (A)</p> <p>Approx. 40 min Snd B/W</p> <p>3/4" Cassette</p> <p>Source: MBI</p> <p>(*) (P)</p>	

SUBJECT AREA 4 - BASIC SCIENCES: THERMODYNAMICS (THERMOCHEMISTRY)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Molecular Theory of Matter (A)</u> 10 min Snd Col Source: PSU (*) (R)</p> <p><u>Vibration of Molecules (A)</u> 11 min Snd B/W Source: PSU (**) (R)</p> <p><u>Allotropic Transformation of Cobalt and Co-Ni Alloys (C)</u> 15 min Snd Col Source: CIC (**) (FL)</p> <p><u>Physical Chemistry of Polymers (E)</u> 22 min Snd Col Source: BTL (**) (FL)</p>	<p><u>Equipartition of Energy (A)</u> TC 4 min S11 Col Source: EFL (**) (P)</p> <p><u>Maxwell Speed Distribution (A)</u> TC 4 min S11 Col Source: EFL (**) (P)</p> <p><u>Model of the Kinetic-Molecular Concept (A)</u> TC, r/r 4 min S11 Col Source: Wiley (*) (P)</p> <p><u>Molecular Motion in Condensed Phases (A)</u> TC 4 min S11 Col Source: MLA (**) (P)</p> <p><u>Molecular Vibrations--Using Models (A)</u> TC 4 min S11 Source: MLA (**) (P)</p> <p><u>Molecular Vibrations Using Models (A)</u> TC 4 min S11 Col Source: ACCC (*) (P)</p> <p><u>Phase Change (A)</u> TC 4 min S11 Col Source: EBEC (*) (P)</p> <p><u>Properties of Gas (A)</u> TC 4 min S11 Col Source: EFL (*) (P)</p> <p><u>Solid, Liquid, Gas--Part I (A)</u> TC, r/r 4 min S11 Col Source: BFA (*) (P)</p> <p><u>Solid, Liquid, Gas--Part II (A)</u> TC, r/r 4 min S11 Col Source: BFA (*) (P)</p>

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Equilibrium and Kinetics (I)</u> (A) <u>Atom Motion and Temperature</u> <u>Kinetics in an Ideal Gas</u> <u>Internal Energy</u> <u>Randomness and Entropy</u> <u>Equilibrium in Chemical</u> <u>Systems</u> 21 Slids 48 min tape Source: Ruoff & PC (*) (P)	<u>Structure, Bonding, and the</u> <u>Periodic Table (An Open Univer-</u> <u>sity Course) (A)</u> 11 VT's each 25 min Snd B/W 3/4" Cassette Study book Source: H&R (*) (RP)	
<u>Equilibrium and Kinetics (II)</u> (A) <u>Barometric Formula</u> <u>Atom Vibrations</u> 20 Slids 45 min tape Source: Ruoff & PC (*) (P)	<u>Thermodynamics (Part I) (A Two-</u> <u>Part Review Course) (A)</u> 20 VT's each 1 hour Snd B/W 3/4" Cassette 71 page study book Source: GSI (**) (RP)	
<u>The Fabulous Necklace (E)</u> 88 Slids Col 18 min tape Snd Source: U of A (*) (FL)	<u>Thermodynamics (Part II) (A</u> <u>Two-Part Review Course) (A)</u> 20 VT's each 1 hour Snd B/W 3/4" Cassette 71 page study book Source: GSI (**) (RP)	

SUBJECT AREA 4 - BASIC SCIENCES: THERMODYNAMICS (THERMOCHEMISTRY)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
		<p><u>Thermal Expansion of Gases (A)</u> TC, r/r 4 min S11 Co1 Source: EFL (*) (P)</p> <p><u>Thermal Expansion of Liquids (A)</u> TC, r/r 4 min S11 Co1 Source: EFL (*) (P)</p> <p><u>Thermal Expansion of Solids (A)</u> TC, r/r 4 min S11 Co1 Source: EFL (*) (P)</p> <p><u>Vapor Pressure and Boiling (A)</u> TC 3 min S11 Co1 Source: BFA (*) (P)</p> <p><u>Vapor Pressure and Temperature (A)</u> TC 4 min S11 Co1 Source: BFA (*) (P)</p> <p><u>Vapor Pressure of a Liquid (A)</u> TC, r/r 4 min S11 Co1 Source: LBF (*) (P)</p>
	25	

SUBJECT AREA 5 - BASIC SCIENCES: KINETICS (DIFFUSION)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>Phase Equilibria (A)</u> (Volume 1 of a five-part course on Materials Technology)</p> <p>Workbook and VT's 9 sessions, approx. 2-3 week's study Source: SL (*) (SA)</p>	<p><u>Nuclear Radiations: Uses in Industry (A)</u> 15 min Snd B/W Source: PSU (*) (R)</p> <p><u>Solutions (A)</u> 16 min Snd Col Source: PSU (*) (R)</p> <p><u>Allotropic Transformation of Cobalt and Co-Ni Alloys (C)</u> 15 min Snd Col Source: CIC (**) (FL)</p> <p><u>Diffusion on Palladium Surfaces Under Ion Bombardment (C)</u> 4 min Sll B/W Source: PSU-EC (**) (R)</p> <p><u>Dislocation Movements (C)</u> 9 min Sll B/W Source: PSU-EC (**) (R)</p>	<p><u>Diffusion (A)</u> TC 4 min Sll Col Source: EFL (**) (P)</p> <p><u>Diffusion, Part I (A)</u> TC 3 min Sll B/W Source: BTL (**) (P)</p> <p><u>Diffusion, Part II (A)</u> TC 4 min Sll B/W Source: BTL (**) (P)</p> <p><u>Diffusion on Palladium Surfaces During Simultaneous Ion-Irradiation (C,D)</u> r/r 4 min Sll B/W Source: IMF (**) (P)</p>

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Equilibrium and Kinetics (I)</u> (A) <u>Kinetics in an Ideal Gas</u> 21 Slids 48 min tape Source: Ruoff & PC (*) (P)	<u>Phase Equilibria</u> (Volume 1 of a five-part course on Materials Technology (A) VT's and workbook 9 sessions, approx. 2-3 week's study Source: SL (*) (SA)	
<u>Equilibrium and Kinetics (III)</u> (A) <u>Special Cases of Diffusion</u> <u>Applications of Diffusion</u> <u>Theory</u> <u>Nucleation</u> 21 Slids 59 min tape Source: Ruoff & PC (**) (P)		

SUBJECT AREA 6 - BASIC SCIENCES: KINETICS (REACTIONS: MECHANISMS)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>Phase Diagrams and Micro-structure (A)</u> (Section of Open University Course) Approx. 6 hr module, 56 pp. Source: H&R (*) (P)</p>	<p><u>Introduction to Reaction Kinetics (A)</u> 13 min Snd Col Source: PSU (**) (R)</p>	<p><u>Properties of a Covalently Bonded Molecule (A)</u> TC 4 min S11 Col Source: EBEC (**) (P)</p> <p><u>Properties of an Ionic Compound (A)</u> TC 4 min S11 Col Source: EBEC (**) (P)</p> <p><u>Solutions (A)</u> TC 3 min S11 Col Source: SUTH (*) (P)</p> <p><u>Triple Point of Water (A)</u> r/r 4 min S11 Col Source: SET K (*) (P)</p> <p><u>Addition Polymerization (E)</u> TC 3 min S11 Col Source: EBEC (**) (P)</p>

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Equilibrium and Kinetics (II)</u> (A) <u>Kinetics of Reactions</u> <u>Diffusion</u> 20 Slids 45 min tape Source: Ruoff & PC (*) (P)	<u>Frustrated Reactions (A)</u> Approx. 40 min Snd B/W 3/4" Cassette Source: MBI (*) (P)	
	30	

SUBJECT AREA 7 - CHARACTERIZATION: STRUCTURE (CRYSTAL)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>Architecture of Solids (Section of Open University Course) (A)</u> Approx. 6 hr module, 98 pp. Source: H&R (*) (P)</p> <p><u>Basic Principles in Chemistry-Atomic Structure: (A)</u> 1. <u>Electron Configuration and Orbital Diagrams</u> 2. <u>Atomic Structure and Periodic Chart</u> 3. <u>Electrical Forces Within Atoms</u> 4. <u>Classification of the Elements: Metals; Non-Metals; Metalloids</u> Approx. 2 hr each unit. Slds or FS with AT and workbook Source: CSC (*) (P)</p> <p><u>Crystallography: (A)</u> <u>Book 1. Packing: The Crystal as an Assembly of Spheres</u> <u>Book 2. Unit Cells and Space Lattices</u> <u>Book 3. Miller Indices: Representation of Planes and Directions</u> <u>Book 4. The Seven Crystal Systems</u> <u>Book 5. The Fourteen Bravais Lattices</u> <u>Book 6. Introduction to X-Ray Diffraction</u> Programmed instruction books with hands-on materials Sold as a package Approx 3 credit course Source: ACC (*) (P)</p> <p><u>Crystals of Linear Macromolecules (A)</u> 252 page manual (Approx 5 weeks study time) 8 ATs (running time-7.6 hrs) Source: ACS (**) (P)</p>	<p><u>Automated X-Ray Diffractometry (A)</u> 17 min Snd Col Source: BTL (**) (FL)</p> <p><u>Bubble Model of a Metal (A)</u> 15 min Snd Col Source: Purdue (*) (R)</p> <p><u>Crystals (A)</u> 24 min Snd Col Source: PSU (**) (R)</p> <p><u>Crystals--An Introduction (A)</u> 25 min Snd Col Source: BTL (*) (FL)</p> <p><u>Crystals and Their Structures (A)</u> 22 min Snd B/W Source: PSU (**) (R)</p> <p><u>Study of Crystals (A)</u> 18 min Snd Col Source: PSU (**) (R)</p> <p><u>Study of Grain Growth in BEO Using a New Transmitted Light Hot Stage (A)</u> 17 min Snd Col Source: AEC (**) (FL)</p> <p><u>Symmetry (A)</u> 10 min Snd Col Source: PSU (*) (R)</p> <p><u>The Ultimate Structure (A)</u> 25 min Snd B/W Source: PEI (**) (FL)</p> <p><u>X-Ray Crystallography (A)</u> 21 min Snd Col Source: PSU (**) (R)</p>	<p><u>Bubble Model of a Crystal--Deformation and Dislocation (A)</u> TC 3 min S11 Col Source: EFL (*) (P)</p> <p><u>Bubble Model of a Crystal--Structure and Boundaries (A)</u> TC 2 min S11 Col Source: EFL (*) (P)</p> <p><u>Comparison of (Various) Crystal Structures (A)</u> TC 4 min S11 Col Source: SETCO (*) (P)</p> <p><u>Crystals and X-Ray Diffraction (A)</u> TC 4 min S11 B/W Source: MLA (**) (P)</p> <p><u>Diffraction of X-Rays by a Crystal (A)</u> TC 4 min S11 Col Source: EBEC (**) (P)</p> <p><u>The F. C. C. Crystal Structure (A)</u> TC 4 min S11 Col Source: SETCO (*) (P)</p> <p><u>Molecular Motion in Condensed Phases (A)</u> TC 4 min S11 Col Source: MLA (**) (P)</p> <p><u>Structure of a Covalent Molecule CCl4 (A)</u> TC 4 min S11 Col Source: EBEC (**) (P)</p> <p><u>Structure of an Ionic Crystal (A)</u> TC 4 min S11 Col Source: EBEC (**) (P)</p>

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Atomic Arrangements (I) (A)</u> <u>Crystals and Lattices</u> <u>Crystallographic Directions</u> <u>Packing of Atoms</u> 33 Slids 53 min tape Source: Ruoff & PC (*) (P)	<u>Amorphous and Molecular Structures (Lesson 7) Introduction to Materials Science (set of 16 VT's) (A)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	<u>Crystallography: (A)</u> Book 1. <u>Packing: The Crystal as an Assembly of Spheres</u> Book 2. <u>Unit Cells and Space Lattices</u> Book 3. <u>Hillier Indices: Representation of Planes and Directions</u> Book 4. <u>The Seven Crystal Systems</u> Book 5. <u>The Fourteen Bravais Lattices</u> Book 6. <u>Introduction to X-Ray Diffraction</u>
<u>Atomic Arrangements (III) (A)</u> <u>Diffraction by Crystals</u> 13 Slids 33 min tape Source: Ruoff & PC (*) (P)	<u>Atomic Bonding (Lesson 3) Introduction to Materials Science (set of 16 VT's) (A)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	Hands-on materials with programmed instruction books Sold as a package Approx 3 credits Source: ACC (*) (P)
<u>Atomic Arrangements Series (A)</u> 6 Slids No tape Source: ASM (**) (P)	<u>Crystal Structure I (Lesson 5) Introduction to Materials Science (set of 16 VT's) (A)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	<u>Crystal Structure of Metals (A lab experiment) (B,C)</u> Objective: To study the atomic arrangements in BCC, FCC, and HCP crystals with the aid of hard-sphere models.
<u>Basic Principles in Chemistry-Atomic Structure: (A)</u> 1. <u>Electron Configuration and Orbital Diagrams</u> 2. <u>Atomic Structure and the Periodic Chart</u> 3. <u>Electrical Forces Within Atoms</u> 4. <u>Classification of the Elements: Metals; Non-Metals; Metalloids</u> Slids or FS with AT and workbook Approx. 2 hour each unit Source: CSC (*) (P)	<u>Crystal Structure II (Lesson 6) Introduction to Materials Science (set of 16 VT's) (A)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)
<u>Binding in Atoms, Molecules and Crystals (I) (A)</u> <u>Hydrogen Atom and Hydrogen-like Atoms</u> 21 Slids 52 min tape Source: Ruoff & PC (**) (P)	<u>Introduction to Engineering Materials (A Course) (A)</u> 23 VT's each 1 hour Snd B/W 3/4" Cassette Source: GSI (*) (RP)	<u>Laboratory Experiments in X-Ray Crystallography (A)</u> 21 experiments in 133 page booklet providing objectives, equipment and materials, procedures, and expected results Source: McGraw Hill (**) (P)
<u>Crystals of Linear Macromolecules (A)</u> 8 AT's (running time-7.6 hours, 252 page manual (Approx. 5 weeks study time) Source: ACS (**) (P)	<u>Multiphase Materials: Phase Diagrams (Lesson 14) Introduction to Materials Science (set of 16 VT's) (A)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	
	<u>The Iron-Carbon System (Lesson 15) Introduction to Materials Science (set of 16 VT's) (B)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	

SUBJECT AREA 7 - CHARACTERIZATION: STRUCTURE (CRYSTAL)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>Phase Equilibria (A)</u> (Volume I of a five-part course on Materials Technology) Workbook and VTs 9 sessions, approx 2-3 weeks study Source: SL (*) (SA)</p> <p><u>Strong Materials: Electrons and Waves (A)</u> (Section of Open University Course) Approx 6 hr module, 104 pp Source: H&R (*) (P)</p> <p><u>Basic Metallurgy (B,C)</u> (A programmed technical mini-course) Approx one weeks study, 260 pp Source: ASM (*) (P)</p>	<p><u>X-Ray Diffraction (A)</u> (Section of Open University Course) 25 min Snd B/W Source: H&R (P) & AS (R) (*)</p> <p><u>X-Ray Spectroscopy--The Inside Story (A)</u> 26 min Snd Col Source: NASA (**) (FL)</p> <p><u>Concepts of Dislocations (B,C)</u> 7 min Snd Col Source: PSU (**) (R)</p> <p><u>Deformation of Crystalline Materials (Part I) (B,C)</u> 5 min Snd Col Source: PSU (**) (R)</p> <p><u>Deformation of Crystalline Materials (Part II) (B,C)</u> 6 min Snd Col Source: PSU (**) (R)</p> <p><u>Introduction to Strengthening Materials (B,C)</u> 6 min Snd Col Source: PSU (**) (R)</p> <p><u>Metal Crystals (B,C)</u> 35 min Sll B/W Source: PSU (*) (R)</p> <p><u>Metal Crystals in Action (B,C)</u> 30 min Snd Col Source: ASM (*) (R)</p> <p><u>Metallurgical Background of Stainless Steel (B)</u> 39 min Snd Col Source: RSC (*) (FL)</p>	<p><u>Crystal Structure of Metals (B,C)</u> TC 5 min Sll Col Source: LBF (*) (P)</p> <p><u>Crystal Structures of Metals (B,C)</u> TC, r/r 4 min Sll Col Source: Wiley (*) (P)</p> <p><u>The Fracture of Solids (D)</u> TC 4 min Sll Col Source: BMCS (*) (P)</p> <p><u>The Germanium Crystal Lattice (F)</u> TC 1 min Sll Col Source: SETCO (*) (P)</p> <p><u>The Germanium Unit Cell (F)</u> TC 3 min Sll Col Source: SETCO (*) (P)</p>

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Materials Series (A)</u> 6 Slids No tape Source: ASM (**) (P)	<u>Seeing Inside Metals (B,C)</u> 1 30 min tape Snd B/W 3/4" Cassette Source: AAAS (**) (P)	
<u>Micro- and Macro-Structure: Single Crystals (A)</u> 53 Slids 41 min tape Source: Ruoff & PC (*) (P)	<u>Phase Equilibria (Volume 1 of a five-part course on Materials Technology (A)</u> VT's and workbook 9 sessions, approx. 2-3 week's study Source: SL (*) (SA)	
<u>Nature and Structure of Materials (A)</u> 35 Slids 50 min tape Source: Ruoff & PC (*) (P)	<u>Bonding and the Structure of Solids (A)</u> Approx. 40 min Snd B/W 3/4" Cassette Source: MBI (*) (P)	
<u>Mechanical Properties Series (B,C)</u> 11 Slids No tape Source: ASM (**) (P)	<u>Some Consequences of a Periodic Lattice (A)</u> Approx. 40 min Snd B/W 3/4" Cassette Source: MBI (*) (P)	
<u>Crystal Structure (E)</u> 11 Slids No tape CoT Source: SPE (**) (FL)	<u>Miller Indices (A)</u> Approx. 40 min Snd B/W 3/4" Cassette Source: MBI (*) (P)	
<u>Polymers (II): (E)</u> <u>Thermoplastic and Thermosetting Resins</u> 15 Slids 25 min tape Source: Ruoff & PC (**) (P)		
<u>X-Ray Analysis (E)</u> 34 Slids No tape Source: SPE (**) (FL)		

SUBJECT AREA 7 - CHARACTERIZATION: STRUCTURE (CRYSTAL)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<u>Research in Steel (B)</u> 26 min Snd Col Source: USS (*) (FL)	
	<u>Seeing Inside Metals (B,C)</u> 30 min Snd B/W Source: PSU (**) (R)	
	<u>Vanadium--A Transition Element (B,C)</u> 22 min Snd Col Source: PSU (**) (R)	

SUBJECT AREA 8 - CHARACTERIZATION: STRUCTURE (MICRO)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>Materials (A)</u> Text from Open University Course: <u>The Man-Made World</u> 36 pp. Approx. 1 hr class study Source: H&R (*) (P)</p> <p><u>Phase Diagrams and Micro- structure (A)</u> (Section of Open University Course) Approx 6 hr module, 56 pp Source: H&R (*) (P)</p> <p><u>Structures and Micro- structures (A)</u> Text from Open University Course: <u>The Man- Made World</u> 40 pp Approx 1 hr class study Source: H&R (*) (P)</p> <p><u>Basic Metallurgy (B,C)</u> (A programmed technical mini- course) Approx 1 weeks study, 260 pp Source: ASM (*) (P)</p> <p><u>Fundamentals of Indentation. Hardness Testing (B,C)</u> (A programmed technical mini- course) Approx 1 weeks study, 171 pp Source: ASM (*) (P)</p> <p><u>Nickel in Gray Iron-Influence on Structure and Properties (B,C)</u> Research review module, 16 pp Source: INCO (**) (F)</p> <p><u>Role of Nickel in Carburizing Steel, The (B,C)</u> Research review module, 12 pp Source: INCO (**) (F)</p>	<p><u>Computer Analysis of NMR in Nematic Solvents for Molecular Structure (A)</u> 8 min Snd B/W Source: BTL (**) (FL)</p> <p><u>Looking at Materials #3: Char- acterization (A)</u> 30 min Snd B/W Source: PSU (**) (R)</p> <p><u>Study of Grain Growth in BEO Using a New Transmitted Light Hot Stage (A)</u> 17 min Snd Col Source: AEC (**) (FL)</p> <p><u>Trapping of Free Radicals at Low Temperatures (A)</u> 13 1/2 min Snd Col Source: NBS (**) (FL)</p> <p><u>Bubble Model of a Metal (B,C)</u> 10 min Snd B/W Source: PSU (**) (R)</p> <p><u>Concepts of Dislocations (B,C)</u> 7 min Snd Col Source: PSU (**) (R)</p> <p><u>Deformation of Crystalline Materials (Part I) (B,C)</u> 5 min Snd Col Source: PSU (**) (R)</p> <p><u>Deformation of Crystalline Materials (Part II) (B,C)</u> 6 min Snd Col Source: PSU (**) (R)</p> <p><u>Introduction to Strengthening Materials (B,C)</u> 6 min Snd Col Source: PSU (**) (R)</p>	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Materials Series (A)</u> 6 Slids No tape Source: ASM (**) (P)	<u>Internal Structure (Lesson 1)</u> <u>Introduction to Materials</u> <u>Science (set of 16 VT's) (A)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	<u>Microstructure Examination (A</u> <u>lab experiment) (B,C)</u> Objective: To study the micro- structure of a variety of single-phase materials One of 23 lab experiments offer- ed in NSF Report and under Grant GY-4709 and available from author Source: JR (*) (F)
<u>Micro- and Macro-Structure:</u> <u>Reflection Microscope (A)</u> <u>Polycrystalline Materials (A)</u> <u>Polyphase Materials (A)</u> <u>Composite Materials (I)</u> <u>Quantitative Microscopy (A)</u> 53 Slids 41 min tape Source: Ruoff & PC (*) (P)	<u>Microstructures (Lesson 11)</u> <u>Introduction to Materials</u> <u>Science (set of 16 VT's) (A)</u> 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	
<u>Nature and Structure of Mat-</u> <u>erials (A)</u> 35 Slids 50 min tape Source: Ruoff & PC (*) (P)	<u>Structure-Property Relation-</u> <u>ships in Single-Phase Metals</u> <u>II (Lesson 13) Introduction to</u> <u>Materials Science (set of 16</u> <u>VT's) (B,C)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	
<u>Phase Diagrams (I):</u> <u>Nonequilibrium Transforma-</u> <u>tions (A)</u> <u>Age Precipitation Hardening</u> <u>(C)</u> <u>Fe-C System (B)</u> 36 Slids 53 min tape Source: Ruoff & PC (*) (P)	<u>Structure-Property Relation-</u> <u>ships in Multiphase Alloys</u> <u>(Lesson 16) Introduction to</u> <u>Materials Science (set of 16</u> <u>VT's) (B,C)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	
<u>Strengthening Mechanisms: (I)</u> <u>(A)</u> <u>Second Phase Strengthening</u> 44 Slids 57 min tape Source: Ruoff & PC (*) (P)	<u>Glass (Lesson 9) Introduction</u> <u>to Materials Science (set of 16</u> <u>VT's) (G)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	
<u>Mechanical Properties Series</u> <u>(B,C)</u> 11 Slids No tape Source: ASM (**) (P)	<u>The Microstructure of Alloys</u> <u>(B,C)</u> Approx. 40 min Snd B/W 3/4" Cassette Source: MBI (*) (P)	

SUBJECT AREA 8 - CHARACTERIZATION: STRUCTURE (MICRO)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Metallurgical Background of Stainless Steel (B)</u> 39 min Snd Col Source: RSC (*) (FL)</p> <p><u>Story of the Chilled Car Wheel (B)</u> 38 min Snd Col Source: Purdue (*) (R)</p> <p><u>Atomic Metallurgy (C)</u> 18 min Snd Col Source: AEC (**) (FL)</p> <p><u>The Lead Matrix (C)</u> 27 min Snd Col Source: ASF, BM, LJA (*) (FL)</p> <p><u>Micro-deformation of Uranium (C)</u> 17 min Snd Col Source: AEC (**) (FL)</p> <p><u>Looking at Materials #5: Ceramics (D)</u> 30 min Snd B/W Source: PSU (**) (R)</p> <p><u>Physical Chemistry of Polymers (E)</u> 22 min Snd Col Source: BTL (**) (FL)</p>	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<p><u>Polymers (I): (E)</u> <u>Idealized, Random Chain</u> <u>Degree of Polymerization</u> <u>Topology of Vinyl Polymers</u> <u>Other Addition Polymers</u></p> <p>26 Slids 40 min tape Source: Ruoff & PC (*) (P)</p> <p><u>Polymers (II): (E)</u> <u>Copolymers</u> <u>Condensation Polymers</u> <u>Network Polymers</u></p> <p>15 Slids 25 min tape Source: Ruoff & PC (**) (P)</p> <p><u>Wood Structure (H)</u> 35 min tape 114 Slids Source: SFOSU (*) (RP)</p>		

SUBJECT AREA 9 - CHARACTERIZATION: STRUCTURE (DEFECT)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>Alloy Design, Using Second Phases (B,C)</u></p> <p>Research review module, 24 pp Source: INCO (**) (F)</p>	<p><u>Dislocations Illustrated (A)</u></p> <p>15 min Snd Col Source: MLS (*) (RP)</p> <p><u>Looking at Materials #3: Characterization (A)</u></p> <p>30 min Snd B/W Source: PSU (**) (R)</p> <p><u>Nuclear Magnetic Resonance (A)</u></p> <p>27 min Snd Col Source: PSU (**) (R)</p> <p><u>Silicon and Its Compounds (A,F)</u></p> <p>14 min Snd Col Source: PSU (**) (R)</p> <p><u>Tension Testing (A)</u></p> <p>21 min Snd B/W Source: NAC (*) (RP)</p> <p><u>Testing for Tomorrow (A)</u></p> <p>29 min Snd Col Source: AEC (*) (FL)</p> <p><u>X-Ray Inspection (A)</u></p> <p>15 min Snd Col Source: Purdue (*) (FL)</p> <p><u>Bubble Model of a Metal (B,C)</u></p> <p>10 min Snd B/W Source: PSU (**) (R)</p> <p><u>Hands of the Giants (B,C)</u></p> <p>30 min Snd Col Source: Wyman (**) (FL)</p> <p><u>Introduction to Strengthening Materials (B,C)</u></p> <p>6 min Snd Col Source: PSU (**) (R)</p> <p>41</p>	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Atomic Arrangements (II) (A)</u> <u>Symmetry and Properties</u> <u>Imperfections in Crystals</u> 24 Slids 42 min tape Source: Ruoff & PC (*) (P)	<u>Imperfections (Lesson 10) (In-</u> <u>roduction to Materials Sci-</u> <u>ence (set of 16 VT's) (A)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	<u>Creep of Metals (A lab experi-</u> <u>ment) (C)</u> Objective: To study creep de- formation of metals. One of 23 lab experiments offer- ed in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)
<u>Atomic Arrangements (III) (A)</u> <u>Glasses</u> 13 Slids 33 min tape Source: Ruoff & PC (*) (P)	<u>Structure-Property Relation-</u> <u>ships in Single-Phase Metals I</u> <u>(Lesson 12) Introduction to</u> <u>Materials Science (set of 16</u> <u>VT's) (B,C)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	
<u>Basic Principles in Chemistry-</u> <u>Chemical Bonding (A)</u> 1. <u>Bonding Between Atoms of</u> <u>the Same Element: Metals</u> <u>and the Metallic Bond</u> 2. <u>Bonding Between Atoms of</u> <u>the Same Element: Non-Met-</u> <u>als and the Covalent Bond</u> 3. <u>Bonding Between Atoms of</u> <u>Different Elements: Metals</u> <u>and Non-Metals-The Ionic</u> <u>Bond</u> 4. <u>Bonding Between Atoms of</u> <u>Different Elements-Non-Met-</u> <u>als and Covalent Compounds</u> 5. <u>Electronegativity, Polar</u> <u>Covalent Bonds, Polar</u> <u>Molecules, Hydrogen Bonds,</u> <u>and Coordinate Covalent</u> <u>Bonds</u> Slids or FS with AT and Work- book Approx. 2 hour each unit Source: CSC (*) (P)	<u>Structure-Property Relation-</u> <u>ships in Single-Phase Metals</u> <u>II (Lesson 13) Introduction to</u> <u>Materials Science (set of 16</u> <u>VT's) (B,C)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	
<u>Mechanical Properties Series</u> <u>(B,C)</u> 11 Slids No tape Source: ASM (**) (P)	<u>Materials Science: The Re-</u> <u>lationships between Structure</u> <u>and Properties (A)</u> Approx. 40 min Snd B/W 3/4" Cassette Source: MBI (*) (P)	

SUBJECT AREA 9 - CHARACTERIZATION: STRUCTURE (DEFECT)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Metal Crystals in Action (B,C)</u> 30 min Snd Col Source: ASM (*) (R)</p> <p><u>Metals and Nonmetals (B,C,D)</u> 11 min Snd B/W Source: PSU (**) (R)</p> <p><u>Research in Steel (B)</u> 26 min Snd Col Source: USS (*) (FL)</p>	
	43	

SUBJECT AREA 10 - CHARACTERIZATION: STRUCTURE (SURFACES, INTERFACES)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Dislocations in Graphite (A)</u> 25 min Snd Col Source: Atomics Intl. (**) (FL)</p> <p><u>Electron Microscopy (A)[†]</u> 23 min Snd Col Source: PSU (**) (R)</p> <p><u>Electron Microscopy (A)[†]</u> (Section of Open University Course) 25 min Snd B/W Source: H&R (P) & AS (R) (*)</p> <p><u>Eutectic Solidification in Transparent Materials (A)</u> 13 min S11 B/W Source: BTL (**) (FL)</p> <p><u>Looking at Materials #3: Characterization (A)</u> 30 min Snd B/W Source: PSU (**) (R)</p> <p><u>Optical Microscopy (A)</u> (Section of Open University Course) 25 min Snd B/W Source: H&R (P) & AS (R) (*)</p> <p><u>Silver Dendrite Formation in Distilled Water (A)</u> 11 min S11 B/W Source: BTL (**) (FL)</p> <p><u>The Solidification of Single Phase Transparent Materials (A)</u> 11 min S11 B/W Source: BTL (**) (FL)</p> <p><u>Spectrograph (A)</u> 20 min Snd Col Source: PSU (**) (R)</p>	<p><u>The Fracture of Solids (D)</u> TC S11 Col Source: RMCS (*) (P)</p>

[†]Two different films having the same title.

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER

SUBJECT AREA 10 - CHARACTERIZATION: STRUCTURE (SURFACES, INTERFACES)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Study of Grain Growth in BEO Using a New Transmitted Light Hot Stage (A)</u> 17 min Snd Col Source: AEC (**) (FL)</p> <p><u>Terra Incognita (A)</u> 27 min Snd B/W Source: PEI (*) (FL)</p> <p><u>X-Ray Spectroscopy--The Inside Story (A)</u> 26 min Snd Col Source: NASA (**) (FL)</p> <p><u>Magnetic Reversal of Ferro-magnetics (B,C)</u> 7 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Making Metals Behave (B,C)</u> 25 min Snd Col Source: Assoc. Films (*) (FL)</p> <p><u>Metallographic Sample Preparation--Coarse Grinding (B,C)</u> 9 min Snd Col Source: Buehler (*) (FL)</p> <p><u>Metallographic Sample Preparation--Fine Grinding (B,C)</u> 8 min Snd Col Source: Buehler (*) (FL)</p> <p><u>Metallographic Sample Preparation--Mounting (B,C)</u> 13 min Snd Col Source: Buehler (*) (FL)</p> <p><u>Metallographic Sample Preparation--Rough and Final Polishing (B,C)</u> 25 min Snd Col Source: Buehler (*) (FL)</p>	

SUBJECT AREA 10 - CHARACTERIZATION: STRUCTURE (SURFACES, INTERFACES)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Metallographic Sample Preparation--Sectioning (B,C)</u> 9 min Snd Col Source: Buehler (*) (FL)</p> <p><u>Modern Metallography Equipment and Methods (B,C)</u> 29 min Snd Col Source: Buehler (*) (FL)</p> <p><u>Research in Steel (B)</u> 26 min Snd Col Source: USS (*) (FL)</p> <p><u>Story of the Chilled Car Wheel (B)</u> 38 min Snd Col Source: Purdue (*) (R)</p> <p><u>Tensile Stress of Deep-drawing St VII 23 Sheet Metal (B)</u> 8 1/2 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Tensile Stress of GGG-50 Cast Iron (B)</u> 5 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Tension Testing (B)</u> 21 min Snd Col Source: Purdue (*) (R)</p> <p><u>Control (C)</u> 23 min Snd Col Source: FSI (**) (FL)</p> <p><u>Diffusion on Palladium Surfaces Under Ion Bombardment (C)</u> 4 min S11 B/W Source: PSU-EC (**) (R)</p>	

SUBJECT AREA 10 - CHARACTERIZATION: STRUCTURE (SURFACES, INTERFACES)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Dislocations in Alpha Brass (C)</u> 15 min S11 Col Source: M&R (**) (FL)</p> <p><u>Dislocation Movements (C)</u> 9 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Domain Structures in Superconductors (C)</u> 5 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Growth of Twins in Tin (C)</u> 15 min S11 Col Source: M&R (**) (FL)</p> <p><u>High Temperature Microscopy (C)</u> 23 min Snd Col Source: Hacker (**) (FL)</p> <p><u>Micro-deformation of Uranium (C)</u> 17 min Snd Col Source: AEC (**) (FL)</p> <p><u>Research on Cobalt (C)</u> 8 min Snd Col Source: CIC (**) (FL)</p> <p><u>Tensile Stress of High Purity Aluminum Al 99, 99R (C)</u> 9 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Tensile Stress of the NiCr20Ti-Al Nickel Alloy at Increased Temperatures (C)</u> 9 1/2 min S11 B/W Source: PSU-EC (**) (R)</p>	

SUBJECT AREA 10 - CHARACTERIZATION: STRUCTURE (SURFACES, INTERFACES)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Tensile Stress of NiCr20TiAl - PdNi40 High Temperature Soldered Joints (C)</u> 13 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Tensile Stress of Pure Annealed Zinc Zn99, 99 (C)</u> 8 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Tensile Stress of Pure Rolled Zinc Zn99, 99 (C)</u> 8 1/2 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Tensile Stress of 99.6 Pure Nickel at Increased Temperatures (C)</u> 9 1/2 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Tensile Stress of Sf-Cu Copper (C)</u> 8 1/2 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Torsional Strain in Metals (C)</u> (2 films - with and without Snd) 11 - 12 min B/W Source: PSU-EC (**) (R)</p> <p><u>Petrography--Ceramography Sample Preparation (D)</u> 26 min Snd Col Source: Buehler (*) (FL)</p> <p><u>Low-Energy Electron Diffraction from Germanium (100) and (111) Surfaces (F)</u> 15 min S11 B/W Source: BTL (**) (FL)</p>	

SUBJECT AREA 11 - CHARACTERIZATION: CHEMICAL COMPOSITION (BULK)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<u>Applications of Raman Spectroscopy (A)</u> 154 page manual (approx 3-4 weeks study time) 6 ATs (running time - 5 hrs) Source: ACS (**) (P)	<u>Industrial Applications of Radioisotopes (A)</u> 57 min Snd Col Source: AEC (*) (FL)	<u>Scintillation Spectrometry (A)</u> TC, r/r 3 min Sll Col Source: Set Q (**) (P)
<u>Spectral Interpretation (A)</u> 1. <u>Mass Spectral Interpretation</u> 2. <u>ESR</u> 3. <u>Carbon-13</u> 4. <u>NMR (Part I)</u> 5. <u>NMR (Part II)</u> 6. <u>Infrared</u> 7. <u>Raman</u> Series of 7 workbooks with Slds and ATs Approx 1 - 2 hrs each unit Source: Huley (**) - (P)	<u>Looking at Materials #3: Characterization (A)</u> 30 min Snd B/W Source: PSU (**) (R)	
	<u>Chemistry of Iron and Steel (I of a series of 5) (B)</u> 14 min Snd Col Source: USS (*) (FL)	
	<u>Metallurgical Background of Stainless Steel (B)</u> 39 min Snd Col Source: RSC (*) (FL)	
	<u>Preparation of White Cast Iron Standard (B)</u> 16 min Snd Col Source: USBS (*) (FL)	
	<u>Fahrenheit 3300 (D)</u> 28 min Snd Col Source: BM (*) (FL)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Applications of Raman Spectroscopy (A)</u> 6 ATs (running time - 5 hrs) 154 page manual (Approx. 3-4 weeks study time) Source: ACS (**) (P)	<u>Polymer Science (E)</u> Herman Mark presents the <u>Fundamentals of Polymer Science</u> 3 VT's 80 min total Snd Col 3/4" Cassette Source: MRL (*) (P)	
<u>Aspects of Liquid Scintillation Counting (A)</u> 32 Slids 25 min Source: Beckman (**) (P)		
<u>Basic Aspects of Infrared Spectrophotometry-Instrumentation (A)</u> 51 Slids 45 min Source: Beckman (**) (P)		
<u>Basic Atomic Absorption Spectroscopy (A)</u> 1. <u>Principles of Atomic Absorption</u> - 37 Frms, 19 min 2. <u>Instrumental Requirements</u> - 47 Frms, 26 min 3. <u>Optimizing Instrument Conditions</u> - 37 Frms, 22 min 4. <u>Sample Preparation and Special Sampling Techniques</u> - 57 Frms, 39 min Slids or FS Teacher's Guide Source: CSC (*) (P)		
<u>Basic Infrared Spectroscopy (A)</u> 1. <u>Instrumentation</u> - 45 Frms, 20 min 2. <u>Liquid Sampling Techniques</u> - 31 Frms, 20 min 3. <u>Liquid Sampling Devices</u> - 33 Frms, 20 min 4. <u>Solid Sampling/Part I & II</u> - 53 Frms, 29 min 5. <u>Quantitative Analysis/Part I. The Beer-Lambert Law</u> - 31 Frms, 20 min 6. <u>Quantitative Analysis/Part II. Performing the Analysis</u> - 35 Frms, 20 min Slids or FS Teacher's Guide Source: CSC (*) (P)		

SUBJECT AREA 11 - CHARACTERIZATION: CHEMICAL COMPOSITION (BULK)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Basic Spectrophotometry in the Clinical Laboratory (A)</u> 30 Slids 25 min tape Source: Beckman (**) (P)		
<u>Basic Aspects of Ultraviolet-Visible Spectrophotometry Instrumentation (A)</u> 37 Slids 45 min tape Source: Beckman (**) (P)		
<u>Spectral Interpretation (A)</u> 1. <u>Mass Spectral Interpretation</u> 2. <u>ESR</u> 3. <u>Carbon - 13</u> 4. <u>NMR (Part I)</u> 5. <u>NMR (Part II)</u> 6. <u>Infrared</u> 7. <u>Raman</u> Slids and ATs with workbooks Approx 1 - 2 hrs each unit Source: Huley (**) (P)		
<u>An Introduction to Infrared Spectroscopy (A)</u> 36 Slids 4 min tape Source: Beckman (*) (P)		
<u>An Introduction to Ultraviolet-Visible Spectroscopy (A)</u> 36 Slids 25 min tape Source: Beckman (**) (P)		
<u>Introduction to Radioimmunoassay (A)</u> 40 Slids 35 min tape Source: Beckman (**) (P)		
<u>Preparation of Liquids for Infrared Examination (A)</u> 36 Slids 22 min tape Source: Beckman (*) (P)		

SUBJECT AREA 11 - CHARACTERIZATION: CHEMICAL COMPOSITION (BULK)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Preparation of Solids for Infrared Examination - KBr Disks (A)</u> 33 Slids 25 min tape Source: Beckman (*) (P)		
<u>Preparation of Solids for Infrared Examination - Mulls (A)</u> 35 Slids 20 min tape Source: Beckman (*) (P)		
<u>Preparation of Solutions for Infrared Examination (A)</u> 29 Slids 25 min tape Source: Beckman (*) (P)		
<u>Principles of Gamma Counting (A)</u> 53 Slids 51 min tape Source: Beckman (**) (P)		
<u>The Selection and Effects of Infrared Operating Parameters (A)</u> 23 Slids 20 min tape Source: Beckman (*) (P)		
<u>Polymers (I): (E)</u> <u>Idealized Random Chain</u> <u>Degree of Polymerization</u> <u>Topology of Vinyl Polymers</u> <u>Other Addition Polymers</u> 26 Slids 40 min tape Source: Ruoff & PC (*) (P)		
<u>Polymers (II): (E)</u> <u>Copolymers</u> <u>Condensation Polymers</u> <u>Network Polymers</u> 15 Slids 25 min tape Source: Ruoff & PC (**) (P)		

SUBJECT AREA 12 - CHARACTERIZATION: CHEMICAL COMPOSITION (TRACE)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Analysis by Mass(A)</u> 27 min Snd Col Source: PSU (**) (R)</p> <p><u>Mass Spectrometry (A)</u> 30 min Snd Col Source: PSU (**) (R)</p> <p><u>Neutron Activation Analysis (A)</u> 40 min Snd Col Source: PSU (**) (R)</p> <p><u>One in a Million (A)</u> 15 min Snd Col Source: FSC (**) (P)</p>	<p><u>Aston's Mass Spectrograph (A)</u> TC 2 min S11 Col Source: Set S (**) (P)</p>

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Aspects of Liquid Scintillation Counting (A)</u> 32 Slids 25 min tape Source: Beckman (**) (P)		
<u>Basic Atomic Absorption Spectroscopy (A)</u> 1. Principles of Atomic Absorption - 37 Frms, 19 min 2. Instrumental Requirements - 47 Frms, 26 min 3. Optimizing Instrument Conditions - 37 Frms, 22 min 4. Sample Preparation and Special Sampling Techniques - 57 Frms, 39 min Slids or FS Techer's Guide Source: CSC (*) (P)		
<u>Basic Spectrophotometry in the Clinical Laboratory (A)</u> 30 Slids 25 min tape Source: Beckman (**) (P)		
<u>Basic Aspects of Ultraviolet-Visible Spectrophotometry Instrumentation (A)</u> 37 Slids 45 min tape Source: Beckman (**) (P)		
<u>Introduction to Radioimmunoassay (A)</u> 40 Slids 35 min tape Source: Beckman (**) (P)		
<u>An Introduction to Ultraviolet-Visible Spectroscopy (A)</u> 36 Slids 25 min tape Source: Beckman (**) (P)		
<u>Principles of Gamma Counting (A)</u> 53 Slids 51 min tape Source: Beckman (**) (P)		

SUBJECT AREA 13 - CHARACTERIZATION: CHEMICAL COMPOSITION (NON-DESTRUCTIVE TESTING)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Testing for Tomorrow (A)</u> 29 min Snd Col Source: AEC (*) (FL)</p> <p><u>Future in Steel (8)</u> 28 min Snd Col Source: MTPS (*) (FL)</p> <p><u>Profiles of Steel (8)</u> 26 min Snd Col Source: MTPS (*) (FL)</p>	

SUBJECT AREA 14 - CHARACTERIZATION: INSTRUMENTATION

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Analysis by Mass (A)</u> 27 min Snd Col Source: PSU (**) (R)</p> <p><u>The Conquest of Light (Laser) (A)</u> 10 min Snd Col Source: BTL (*) (FL)</p> <p><u>Electron Microscopy (A)</u> 23 min Snd Col Source: PSU (**) (R)</p> <p><u>Electron Microscopy (A)</u> (Section of Open University Course) 25 min Snd B/W Source: H&R (P) & AS (R) (*)</p> <p><u>Introduction to Lasers (A)</u> 17 min Snd Col Source: BTL (*) (FL)</p> <p><u>Lasers Unlimited (A)</u> 10 min Snd Col Source: BTL (*) (FL)</p> <p><u>Looking at Materials #3: Characterization (A)</u> 30 min Snd B/W Source: PSU (**) (R)</p> <p><u>Making a Microscope (A)</u> (Section of Open University Course) 25 min Snd Col Source: H&R (P) & AS (R) (*)</p> <p><u>Mass Spectrometry (A)</u> 30 min Snd Col Source: PSU (**) (R)</p> <p><u>Nuclear Magnetic Resonance (A)</u> 27 min Snd Col Source: PSU (**) (R)</p>	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Basic Atomic Absorption Spectroscopy (A)</u> 1. <u>Principles of Atomic Absorption</u> - 37 Frms, 19 min 2. <u>Instrumental Requirements</u> - 47 Frms, 26 min 3. <u>Optimizing Instrument Conditions</u> - 37 Frms, 22 min 4. <u>Sample Preparation and Special Sampling Techniques</u> - 57 Frms, 39 min Slds or FS Teacher's Guide Source: CSC (*) (P) <u>Basic Infrared Spectroscopy (A)</u> 1. <u>Instrumentation</u> - 45 Frms, 20 min 2. <u>Liquid Sampling Techniques</u> - 31 Frms, 20 min 3. <u>Liquid Sampling Devices</u> - 33 Frms, 20 min 4. <u>Solid Sampling/Part I & II</u> - 53 Frms, 29 min 5. <u>Quantitative Analysis/Part I. The Beer-Lambert Law</u> - 31 Frms, 20 min 6. <u>Quantitative Analysis/Part II. Performing the Analysis</u> - 35 Frms, 20 min Slds or FS Teacher's Guide Source: CSC (*) (P) <u>Basic Spectrophotometry in the Clinical Laboratory (A)</u> 30 Slds 25 min tape Source: Beckman (**) (P) <u>Basic Aspects of Ultraviolet-Visible Spectrophotometry Instrumentation (A)</u> 37 Slds 45 min tape Source: Beckman (**) (P) <u>An Introduction to Infrared Spectroscopy (A)</u> 36 Slds 4 min tape Source: Beckman (*) (P)	<u>Seeing Inside Metals (B,C)</u> 1 30 min tape Snd B/W 3/4" Cassette Source: AAAS (**) (P)	

SUBJECT AREA 14 - CHARACTERIZATION: INSTRUMENTATION

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>One in a Million (A)</u> 15 min Snd Col Source: FSC (**) (FL)</p> <p><u>Optical Microscopy (A)</u> (Section of Open University Course) 25 min Snd B/W Source: H&R (P) & AS (R) (*)</p> <p><u>Principles of the Optical Maser (A)</u> 30 min Snd Col Source: BTL (*) (FL)</p> <p><u>Spectrograph (A)</u> 20 min Snd Col Source: PSU A-V (**) (R)</p> <p><u>Tension Testing (A)</u> 21 min Snd B/W Source: NAC (*) (RP)</p> <p><u>Terra Incognita (A)</u> 27 min Snd B/W Source: PEI (*) (FL)</p> <p><u>Trapping of Free Radicals at Low Temperatures (A)</u> 13 1/2 min Snd Col Source: NBS (**) (FL)</p> <p><u>The Ultimate Structure (A)</u> 25 min Snd B/W Source: PEI (**) (FL)</p> <p><u>X-Ray-Crystallography (A)</u> 21 min Snd Col Source: PSU (**) (R)</p> <p><u>Profiles of Steel (B)</u> 26 min Snd Col Source: MTPS (*) (FL)</p>	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Introduction to Radioimmuno-</u> <u>assy (A)</u> 40 Slids 35 min tape Source: Beckman (**) (P)		
<u>An Introduction to Ultravio-</u> <u>let-Visible Spectroscopy (A)</u> 36 Slids 25 min tape Source: Beckman (**) (P)		
<u>Micro- and Macro-Structure:</u> <u>Reflection Microscope (A)</u> 53 Slids 41 min tape Source: Ruoff & PC (*) (P)		
<u>Preparation of Liquids for</u> <u>Infrared Examination (A)</u> 36 Slids 22 min tape Source: Beckman (*) (P)		
<u>Preparation of Solids for</u> <u>Infrared Examination-KBr</u> <u>Disks (A)</u> 33 Slids 25 min tape Source: Beckman (*) (P)		
<u>Preparation of Solids for</u> <u>Infrared Examination - Mulls</u> <u>(A)</u> 35 Slids 20 min tape Source: Beckman (*) (P)		
<u>Preparation of Solutions for</u> <u>Infrared Examination (A)</u> 29 Slids 25 min tape Source: Beckman (*) (P)		
<u>The Selection and Effects of</u> <u>Infrared Operating Parameters</u> <u>(A)</u> 23 Slids 20 min tape Source: Beckman (*) (P)		

SUBJECT AREA 14 - CHARACTERIZATION: INSTRUMENTATION

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>X-Ray Diffraction (A)</u> (Section of Open-University Course)</p> <p>25 min Snd B/W Source: H&R (P) & AS (R) (*) (P)</p> <p><u>X-Ray Inspection (A)</u> 15 min Snd Col Source: Purdue (*) (FL)</p> <p><u>X-Ray Spectroscopy--The Inside Story (A)</u> 26 min Snd Col Source: NASA (**) (FL)</p> <p><u>Metallographic Sample Preparation--Coarse Grinding (B,C)</u> 9 min Snd Col Source: Buehler (*) (FL)</p> <p><u>Metallographic Sample Preparation--Fine Grinding (B,C)</u> 8 min Snd Col Source: Buehler (*) (FL)</p> <p><u>Metallographic Sample Preparation--Mounting (B,C)</u> 13 min Snd Col Source: Buehler (*) (FL)</p> <p><u>Metallographic Sample Preparation--Rough and Final Polishing (B,C)</u> 25 min Snd Col Source: Buehler (*) (FL)</p> <p><u>Metallographic Sample Preparation--Sectioning (B,C)</u> 9 min Snd Col Source: Buehler (*) (FL)</p> <p><u>Modern Metallography Equipment and Methods (B,C)</u> 29 min Snd Col Source: Buehler (*) (FL)</p>	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<p><u>X-Ray Analysis (E)</u> 34 Slids No tape Source: SPE (**) (FL)</p>		

SUBJECT AREA 14 - CHARACTERIZATION: INSTRUMENTATION

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<u>Research in Steel (B)</u> 26 min Snd Col Source: USS (*) (FL)	
	<u>Seeing Inside Metals (B,C)</u> 30 min Snd B/W Source: PSU (**) (R)	
	<u>Tension Testing (B)</u> 21 min Snd Col Source: Purdue, (*) (R)	
	<u>Petrography--Ceramiography</u> <u>Sample Preparation (D)</u> 26 min Snd Col Source: Buehler (*) (FL)	

SUBJECT AREA 15 - PROCESSING: MINERAL PROCESSING

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Flotation: (A)</u> Series of three films 1. <u>Behavior of the Air Bubbles</u> 2 1/2 min 2. <u>Loading of the Air Bubbles</u> 5 min 3. <u>Separation of a Mixture (blue lead-quartz)</u> 2 1/2 min Source: PSU-EC (**) (R)</p> <p><u>The Minerals Challenge (A)</u> 27 min Snd Col Source: BM (*) (FL)</p> <p><u>The Searching Man (A)</u> 22 min Snd Col Source: HFBC (*) (R)</p> <p><u>Cast Iron - Biography of a Metal (B)</u> 27 min Snd Col Source: BM (*) (FL)</p> <p><u>Drama of Steel (B)</u> 34 min Snd Col Source: BM (*) (FL)</p> <p><u>Electric Arc Furnace (1 of a series of 5). (B)</u> 7 min Snd Col Source: USS (*) (FL)</p> <p><u>Elements of Hardening (B)</u> 15 min Snd B/W Source: PSU (**) (R)</p> <p><u>Elements of Surface Hardening (B)</u> 14 min Snd B/W Source: PSU (**) (R)</p> <p><u>Elements of Tempering, Normalizing, and Annealing (B,C)</u> 22 min Snd Col Source: Purdue (*) (R)</p>	<p><u>Minerals and Ores (A)</u> TC, r/r 4 min Snd Col Source: LBF (*) (P)</p>

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Chemistry of Iron (B)</u> FS 35 Fms No tape Source: EPS (*) (FL)		
<u>Chemistry of Steel (B)</u> FS Col 50 Fms No tape Source: EPS (*) (FL)		
<u>Raw Materials of Steelmaking (B)</u> FS Col 43 Fms No tape Source: AIS (*) (FL)		

SUBJECT AREA 15 - PROCESSING: MINERAL PROCESSING

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Equiaxed Zone Formation in Castings (B,C)</u> 10 min S11 Col Source: BTL (**) (FL)</p> <p><u>Ferrite Precipitation in Chromium Steel (B)</u> 4 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Iron Making (B)</u> 13 min Snd B/W Source: PSU (**) (R)</p> <p><u>Iron Ore Mining (B)</u> 13 min Snd B/W Source: PSU (**) (R)</p> <p><u>Iron - Product of the Blast Furnace (B)</u> 11 min Snd B/W Source: PSU (*) (R)</p> <p><u>Modern Steel Making (B)</u> 23 min Snd Col Source: USS (*) (FL)</p> <p><u>The New Bethlehem Steel (B)</u> 20 min Snd Col Source: BSC (*) (FL)</p> <p><u>Stainless Steel: Historical Background (one of a series) (B)</u> 30 min Snd Col Source: RSC (*) (FL)</p> <p><u>Steel (B)</u> 33 min Snd Col Source: ISC (*) (FL)</p>	

SUBJECT AREA 15 - PROCESSING: MINERAL PROCESSING

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Steel and America - A New Look</u> (B) 28 min Snd Col Source: AIS (*) (FL)</p> <p><u>Steelmaking Today</u> (B) 29 min Snd Col Source: BM (*) (FL)</p> <p><u>Taconite</u> (B) 29 min Snd Col Source: Armco (*) (FL)</p> <p><u>Trip Steel</u> (B) 11 min Snd Col Source: AEC (**) (FL)</p> <p><u>What Goes Into the Blast Furnace</u> (B) 15 min Snd B/W Source: PSU (**) (R)</p> <p><u>Aluminum</u> (C) 28 min Snd Col Source: MTPS (*) (FL)</p> <p><u>Aluminum: Metal of Many Faces</u> (C) 20 min Snd Col Source: BM (*) (FL)</p> <p><u>Aluminum on the March</u> (C) 28 min Snd Col Source: RMC (*) (FL)</p> <p><u>Better Alloys by Vacuum Melting</u> (C) 17 min Snd Col Source: Coe (**) (FL)</p>	

SUBJECT AREA 15 - PROCESSING: MINERAL PROCESSING

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Chemistry of Aluminum (C)</u> 16 min Snd Col Source: RMC (*) (FL)</p> <p><u>Copper I (C)</u> 37 min Snd Col Source: Assoc. Films (*) (FL)</p> <p><u>Copper - Mining and Smelting (C)</u> 10 min Snd Col Source: BF (*) (R)</p> <p><u>Copper Mining in Zambia (C)</u> 25 min Snd Col Source: AMC (*) (FL)</p> <p><u>Copper - Mining, Smelting, and Refining (C)</u> 35 min Snd Col Source: MSU (*) (R)</p> <p><u>Copper Network (C)</u> 27 min Snd Col Source: BM (*) (FL)</p> <p><u>Copper - Oldest Modern Metal (C)</u> 27 min Snd Col Source: BM (*) (FL)</p> <p><u>Copper Smelting (C)</u> 15 min Sll B/W Source: PSU (**) (R),</p> <p><u>Extraordinary World of Zinc (C)</u> 27 min Snd Col Source: ASF, BM, ZII (*) (FL)</p> <p><u>Lead - From Mine to Metal (C)</u> 28 min Snd Col Source: BM (*) (FL)</p>	

SUBJECT AREA 15 - PROCESSING: MINERAL PROCESSING

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>The Lead Matrix (C)</u> 27 min Snd Col Source: ASF, BM, LIA (*) (FL)</p> <p><u>Lead Milling, Smelting and Refining (C)</u> 34 min Snd B/W Source: PSU (*) (R)</p> <p><u>Magnesium - Metal from the Sea (C)</u> 20 min Snd Col Source: BM (*) (FL)</p> <p><u>Metals Frontier (C)</u> 22 min Snd Col Source: AEC (**) (FL)</p> <p><u>Mining Copper (C)</u> 24 min Snd Col Source: AMC (*) (FL)</p> <p><u>Mining for Nickel (C)</u> 45 min Snd Col Source: Rothacker (*) (FL)</p> <p><u>Milling and Smelting of Sudbury Nickel Ore (C)</u> 54 min Snd Col Source: Rothacker (*) (FL)</p> <p><u>A Product of the Imagination (C)</u> 26 min Snd Col Source: ACA (*) (FL)</p> <p><u>Refining Copper from Sudbury Nickel Ore (C)</u> 39 min Snd Col Source: Rothacker (*) (FL)</p> <p><u>This is Magnesium (C)</u> 12 min Snd Col Source: Dow (*) (FL)</p>	

SUBJECT AREA 15 - PROCESSING: MINERAL PROCESSING

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p>Time for Tin (C)</p> <p>30 min Snd. Col</p> <p>Source: MTPS</p> <p>(*) (FL)</p> <p>Fahrenheit 3300 (D)</p> <p>28 min Snd Col</p> <p>Source: BM</p> <p>(*) (FL)</p>	

SUBJECT AREA 16 - PROCESSING: EXTRACTION (HYDRO, PYRO, ELECTRO)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Charging and Operating a Cupola (A)</u> 14 min Snd Col Source: Purdue (*) (R)</p> <p><u>The Minerals Challenge (A)</u> 27 min Snd Col Source: BM (*) (FL)</p> <p><u>The Blast Furnace (B)</u> 7 1/2 min Snd Col Source: USS (*) (FL)</p> <p><u>Chemistry of Iron and Steel (1 of a series of 5) (B)</u> 14 min Snd Col Source: USS (*) (FL)</p> <p><u>Drama of Steel (B)</u> 34 min Snd Col Source: BM (*) (FL)</p> <p><u>Electric Arc Furnace (1 of a series of 5) (B)</u> 7 min Snd Col Source: USS (*) (FL)</p> <p><u>Elements of Hardening (B)</u> 15 min Snd B/W Source: PSU (**) (R)</p> <p><u>Elements of Surface Hardening (B)</u> 14 min Snd B/W Source: PSU (**) (R)</p> <p><u>Equiaxed Zone Formation in Castings (B,C)</u> 10 min Sil Col Source: BTL (**) (FL)</p> <p><u>Ferrite Precipitation in Chromium Steel (B)</u> 4 min Sil B/W Source: PSU-EC (**) (R)</p>	<p><u>Diffusion on Palladium-Surfaces During Simultaneous Ion-Irradiation (C,D)</u> r/r 4 min Sil B/W Source: IMF (**) (P)</p> <p><u>Solid Solutions (C)</u> TC 4 min Sil B/W Source: SET R (*) (P)</p>

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<p>Waste Materials (Section of open University Course) (A)</p> <p>20 min tape only</p> <p>Source: H&R</p> <p>(*) (P)</p>		
<p>Raw Materials of Steelmaking (B)</p> <p>FS Col</p> <p>43 Fms No tape</p> <p>Source: AIS</p> <p>(*) (FL)</p>		

SUBJECT AREA 16 - PROCESSING: EXTRACTION (HYDRO, PYRO, ELECTRO)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Iron Making (B)</u> 12 min Snd B/W Source: PSU (**) (R)</p> <p><u>Iron Ore Mining (B)</u> 13 min Snd B/W Source: PSU (**) (R)</p> <p><u>Iron - Product of the Blast Furnace (B)</u> 11 min Snd B/W Source: PSU (*) (R)</p> <p><u>Modern Heat Treating Methods (B,C)</u> 15 min Snd Col Source: L&N (*) (FL)</p> <p><u>Modern Steel Making (B)</u> 23 min Snd Col Source: USS (*) (FL)</p> <p><u>The New Bethlehem Steel (B)</u> 20 min Snd Col Source: BSC (*) (FL)</p> <p><u>Open Hearth Furnace (B)</u> 7 min Snd Col Source: USS (*) (FL)</p> <p><u>Special Properties of Stainless Steel (B)</u> 40 min Snd Col Source: RSC (*) (FL)</p> <p><u>Stainless Steel: Historical Background (one of a series) (B)</u> 30 min Snd Col Source: RSC (*) (FL)</p>	

SUBJECT AREA 16 - PROCESSING: EXTRACTION (HYDRO, PYRO, ELECTRO)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Stainless Steel: Metallurgical Background (one of a series)</u> (B)</p> <p>39 min Snd Col Source: RSC (*) (FL)</p> <p><u>Steel (B)</u></p> <p>33 min Snd Col Source: ISC (*) (FL)</p> <p><u>Steel and America - A New Book</u> (B)</p> <p>28 min Snd Col Source: AIS (*) (FL)</p> <p><u>Steel by Stop Watch (Basic Oxygen Process)</u> (B)</p> <p>24 min Snd Col Source: J&L (*) (FL)</p> <p><u>Steelmaking Today (B)</u></p> <p>29 min Snd Col Source: BM (*) (FL)</p> <p><u>Taconite (B)</u></p> <p>29 min Snd Col Source: Armco (*) (FL)</p> <p><u>This is Steel (B)</u></p> <p>33 min Snd Col Source: MTPS (*) (FL)</p> <p><u>Aluminum (C)</u></p> <p>28 min Snd Col Source: MTPS (*) (FL)</p> <p><u>Aluminum: Metal of Many Faces (C)</u></p> <p>20 min Snd Col Source: BM (*) (FL)</p> <p><u>Aluminum on the March (C)</u></p> <p>28 min Snd Col Source: RMC (*) (FL)</p>	

SUBJECT AREA 16 - PROCESSING: EXTRACTION (HYDRO, PYRO, ELECTRO)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Better Alloys by Vacuum Melting (C)</u> 17 min Snd Col Source: Coe (**) (FL)</p> <p><u>Chemistry of Aluminum (C)</u> 16 min Snd Col Source: RMC (*) (FL)</p> <p><u>Copper! (C)</u> 37 min Snd Col Source: Assoc. Films (*) (FL)</p> <p><u>Copper - Mining and Smelting (C)</u> 10 min Snd Col Source: BF (*) (R)</p> <p><u>Copper Mining in Zambia (C)</u> 25 min Snd Col Source: AMC (*) (FL)</p> <p><u>Copper - Mining, Smelting, and Refining (C)</u> 35 min Snd Col Source: MSU (*) (R)</p> <p><u>Copper Network (C)</u> 27 min Snd Col Source: BM (*) (FL)</p> <p><u>Copper - Oldest Modern Metal (C)</u> 27 min Snd Col Source: BM (*) (FL)</p> <p><u>Copper Smelting (C)</u> 15 min SFI B/W Source: PSU (**) (R)</p> <p><u>The Differences in Copper (C)</u> 15 min Snd Col Source: AMC (*) (FL)</p>	

SUBJECT AREA 16 - PROCESSING: EXTRACTION (HYDRO, PYRO, ELECTRO)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Extraordinary World of Zinc (C)</u> 27 min Snd Col Source: ASF, BM, ZII (*) (FL)</p> <p><u>Lead - From Mine to Metal (C)</u> 28 min Snd Col Source: BM (*) (FL)</p> <p><u>The Lead Matrix (C)</u> 27 min Snd Col Source: ASF, BM, LIA (*) (FL)</p> <p><u>Lead Milling, Smelting and Refining (C)</u> 34 min Snd B/W Source: PSU (*) (R)</p> <p><u>Magnesium - Metal from the Sea (C)</u> 20 min Snd Col Source: BM (*) (FL)</p> <p><u>Metals Frontier (C)</u> 22 min Snd Col Source: AEC (**) (FL)</p> <p><u>Mining Copper (C)</u> 24 min Snd Col Source: AMC (*) (FL)</p> <p><u>Mining for Nickel (C)</u> 45 min Snd Col Source: Rothacker (*) (FL)</p> <p><u>Milling and Smelting of Sudbury Nickel Ore (C)</u> 54 min Snd Col Source: Rothacker (*) (FL)</p> <p><u>A Product of the Imagination (C)</u> 26 min Snd Col Source: ACA (*) (FL)</p>	

SUBJECT AREA 16 - PROCESSING: EXTRACTION (HYDRO, PYRO, ELECTRO)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Refining Copper from Sudbury Nickel Ore (C)</u> 39 min Snd Col Source: Rothacker (*) (FL)</p> <p><u>This is Magnesium (C)</u> 12 min Snd Col Source: Dow (*) (FL)</p> <p><u>Time for Tin (C)</u> 30 min Snd Col Source: MTPS (*) (FL)</p>	

SUBJECT AREA 17 - PROCESSING: PREPARATION (ULTRAPURIFICATION)

[illegible]

SUBJECT AREA 18 - PROCESSING: PREPARATION (PARTICULATES)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<u>Colloidal State (A)</u> 15 min Snd Col Source: PSU (**) (R)	
	<u>Colloids (A)</u> 11 min Snd B/W Source: PSU (**) (R)	
	<u>What is Iron Powder? (B)</u> 25 min Snd Col Source: Hoeg. (*) (FL)	
	<u>Looking at Materials #5: Ceramics (D)</u> 30 min Snd B/W Source: PSU (**) (R)	
	<u>Swing Sieve: (D)</u> Series of three films 1. <u>Dry Processing</u> 2 min 2. <u>Wet Processing</u> 4 min 3. <u>Individual Grain Behavior in Wet Processing</u> 3 min	
	S11 B/W Source: PSU-EC (**) (R)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<p>Micro- and Macro-Structure: <u>Quantitative Microscopy (A)</u> 53 Slids 41 min tape Source: Ruoff & PC (*) (P)</p>	7	

SUBJECT AREA 19 - PROCESSING: PREPARATION (SINGLE CRYSTALS)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<u>Crystal Growth Morphologies (A)</u> 17 min Sil Col Source: BTL (**) (FL)	<u>Crystals--Growth From A Melt (A)</u> TC 4 min Sil Col Source: Thorne (*) (P)
	<u>Crystal Kaleidoscope (A)</u> 5 min Sil Col Source: BTL (*) (FL)	<u>Crystals--Growth in Solution (A)</u> TC 4 min Sil Col Source: Thorne (*) (P)
	<u>Crystals (A)</u> 24 min Snd Col Source: PSU (**) (R)	<u>Growth of Crystals (A)</u> TC 4 min Sil Col Source: LONG (*) (P)
	<u>Flow Patterns in Floating Liquid Zones with Rotating End Members (A)</u> 14 min Sil Col Source: BTL (**) (FL)	<u>Solution, Evaporation and Crystallization (A)</u> TC, r/r 3 min Sil Col Source: SET U (*) (P)
	<u>Looking at Materials #1: Crystal Growth (A)</u> 30 min Snd B/W Source: PSU (**) (R)	<u>Sulphur Crystals (A)</u> TC 4 min Sil Col Source: LONG (*) (P)
	<u>Looking at Materials #4: Crystal Growth in Gels (A)</u> 30 min Snd B/W Source: PSU (**) (R)	
	<u>Looking at Materials #6: High Pressure (A)</u> 30 min Snd B/W Source: PSU (**) (R)	
	<u>Silver Dendrite Formation in Distilled Water (A)</u> 11 min Sil B/W Source: BTL (**) (FL)	
	<u>The Solidification of Single Phase Transparent Materials (A)</u> 11 min Sil B/W Source: BTL (**) (FL)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Equilibrium and Kinetics (III)</u> (A) <u>Nucleation</u> 21 Slids 59 min tape Source: Ruoff & PC (**) (P)	<u>To Crystallize or not to Crystallize? (A)</u> Approx. 40 min Snd B/W 3/4" Cassette Source: MBI (*) (P)	

SUBJECT AREA 19 - PROCESSING: PREPARATION (SINGLE CRYSTALS)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Stabilities of Floating Liquid Zones in Simulated Zero Gravity (A)</u> 9 min Snd B/W Source: BTL (**) (FL)</p> <p><u>Study of Crystals (A)</u> 18 min Snd Col Source: PSU (**) (R)</p> <p><u>Study of Grain Growth in BEO Using a New Transmitted Light Hot State (A)</u> 17 min Snd Col Source: AEC (**) (FL)</p> <p><u>Vapor-Liquid-Solid, A Fundamental Process for Growing Crystals (A)</u> 5 min Snd Col Source: BTL (*) FL</p> <p><u>Equiaxed Zone Formation in Castings (B,C)</u> 10 min Sll Col Source: BTL (**) (FL)</p> <p><u>Metal Crystals (B,C)</u> 35 min Sll B/W Source: PSU (*) (R)</p> <p><u>Metal Crystals in Action (B,C)</u> 30 min Snd Col Source: ASM (*) (R)</p> <p><u>Crystal Growth--Growth of tin whiskers in SEM (C)</u> 6 min Sll B/W Source: PSU-EC (**) (R)</p> <p><u>Growth of Twins in Tin (C)</u> 15 min Sll Col Source: M&R (**) (FL)</p>	

SUBJECT AREA 19 - PROCESSING: PREPARATION (SINGLE CRYSTALS)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Research on Cobalt (C)</u> 8 min Snd Col Source: CIC (**) (FL)</p> <p><u>Crystal Growth--Growth of GaP-whiskers (D,E)</u> 6 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Crystalline Transformation (D)</u> 4 min S11 Col Source: PSU-EC (**) (R)</p> <p><u>Krystallos (Quartz Crystal Growth) (D)</u> 11 min Snd Col Source: BTL (*) (FL)</p>	

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SUBJECT AREA 20 - PROCESSING: PREPARATION (THIN FILMS)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Future in Steel (B)</u> 28 min Snd Col Source: MTPS (*) (FL)</p> <p><u>Magnetic Reversal of Ferro-magnetics (B,C)</u> 7 min Sll B/W Source: PSU-EC (**) (R)</p> <p><u>New Dimensions in Metals (B,C)</u> 10 min Snd Col Source: HPMC (**) (FL)</p> <p><u>Profiles of Steel (B)</u> 26 min Snd Col Source: MTPS (*) (FL)</p> <p><u>Infab Processing Refractory Metals (C)</u> 15 min Snd Col Source: UCC (**) (FL)</p> <p><u>I. C. A Shrinking World (F)</u> 16 min Snd Col Source: BTL (*) (FL)</p> <p><u>Integrated Electronics-A New Art (F)</u> 16 min Snd Col Source: BTL (*) (FL)</p> <p><u>Micro (F)</u> 14 min Snd Col Source: MTPS, WEC (*) (FL)</p> <p><u>Modern Transistor Fabrication (F)</u> 35 min Snd Col Source: BTL (*) (FL)</p> <p><u>Printed Circuit Story (F)</u> 16 min Snd Col Source: PSU (*) (R)</p>	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<p><u>Magnetic Properties</u> <u>Special Magnetic Materials</u> (B,I)</p> <p>30 Slids 39 min tape Source: Ruoff & PC (**) (P)</p> <p><u>Microwave Curing (E)</u> 24 Slids No tape Col Source: SPE (*) (FL)</p>		

SUBJECT AREA 21 -- PROCESSING: FORMING (SOLID: FORGING, SINTERING)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>Processing Materials: How and Why?</u> (Section of Open University Course) (A)</p> <p>Approx 6 hr module, 66 pp</p> <p>Source: H&R</p> <p>(*) (P)</p>	<p><u>Concorde</u> (A)</p> <p>(Section of Open University Course)</p> <p>25 min Snd Col</p> <p>Source: H&R (P) & AS (R)</p> <p>(*)</p>	
<p><u>Skin of Concorde, The</u> (A)</p> <p>(Section of Open University Course)</p> <p>Approx 6 hr module, 84 pp</p> <p>Source: H&R</p> <p>(*) (P)</p>	<p><u>Eutectic Solidification in Transparent Materials</u> (A)</p> <p>13 min S11 B/W</p> <p>Source: BTL</p> <p>(**) (FL)</p>	
<p><u>Alloy Design, Using Second Phases</u> (B,C)</p> <p>Research review module, 24 pp</p> <p>Source: INCO</p> <p>(**) (F)</p>	<p><u>Blacksmith for the Stars</u> (B,C)</p> <p>17 min Snd Col</p> <p>Source: Wyman</p> <p>(*) (FL)</p>	
<p><u>Application and Design of Ductile Iron Drawing and Forming Dies, The</u> (B,C)</p> <p>Research review module, 8 pp</p> <p>Source: INCO</p> <p>(**) (F)</p>	<p><u>Drama of Metal Forming</u> (B,C)</p> <p>28 min Snd Col</p> <p>Source: Shell</p> <p>(*) (FL)</p>	
<p><u>Hot Rolled Alloy Steel</u> (B)</p> <p>(A programmed technical mini-course)</p> <p>Approx 1 weeks study, 95 pp</p> <p>Source: ASM</p> <p>(*) (P)</p>	<p><u>Elements of Surface Hardening</u> (B)</p> <p>14 min Snd B/W</p> <p>Source: PSU</p> <p>(**) (R)</p>	
<p><u>Resistance of Nickel and High Nickel Alloys to Corrosion by Sulphuric Acid</u> (B,C)</p> <p>Research review module, 44 pp</p> <p>Source: INCO</p> <p>(**) (F)</p>	<p><u>Elements of Tempering, Normalizing, and Annealing</u> (B,C)</p> <p>22 min Snd Col</p> <p>Source: Purdue</p> <p>(*) (FL)</p>	
<p><u>Strengthening Mechanisms in Nickel-Base Superalloys</u> (B,C)</p> <p>Research review module, 28 pp</p> <p>Source: INCO</p> <p>(**) (F)</p>	<p><u>Forging in Closed Dies</u> (B,C)</p> <p>28 min Snd Col</p> <p>Source: PSU</p> <p>(**) (R)</p>	
<p><u>Porcelain</u> (D) (Section of Open University Course)</p> <p>Approx 6 hr module, 88 pp</p> <p>Source: H&R</p> <p>(*) (P)</p>	<p><u>Future in Steel</u> (B)</p> <p>28 min Snd Col</p> <p>Source: MTPS</p> <p>(*) (FL)</p>	
	<p><u>Hands of the Giants</u> (B,C)</p> <p>30 min Snd Col</p> <p>Source: Wyman</p> <p>(**) (FL)</p>	
	<p><u>Heat Treatment of Steel</u> (B)</p> <p>34 min Snd Col</p> <p>Source: OSU</p> <p>(**) (R)</p>	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<p><u>New Materials (Section of Open University Course) (A)</u> 20 min tape only Source: H & R (*) (P)</p> <p><u>Heat Treatment Series (B,C)</u> 9 Slids No tape Source: ASM (**) (P)</p> <p><u>Processing Theories (E)</u> 35 Slids No tape Source: SPE (**) (FL)</p>	<p><u>Metal Forming (B,C)</u> 30 min Snd Col 3/4" Cassette Source: SME (**) (RP)</p>	<p><u>Heat Treatment of Steel (A lab experiment) (B)</u> Objective: To study the effect of cooling rate on the hardness and microstructure of a low and high carbon steel. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)</p> <p><u>Bending (A lab experiment) (C)</u> Objective: To measure the force-penetration curve on bending and compare to analysis. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)</p> <p><u>Cold Work - Anneal (A lab experiment) (C)</u> Objective: To measure changes in mechanical properties during cold work and annealing of cartridge brass. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)</p> <p><u>Precipitation Hardening (A lab experiment) (C)</u> Objective: To study precipitation hardening in Muntz metal One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)</p>

SUBJECT AREA 21-- PROCESSING: FORMING (SOLID: FORGING, SINTERING)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Heat Treatment of Steel - Elements of Tempering, Normalizing and Annealing (B)</u></p> <p>22 min Snd Col Source: PSU, Purdue (*) (R)</p> <p><u>High Energy Rate Forming (B,C)</u></p> <p>18 min Snd Col Source: USI (*) (FL)</p> <p><u>Hot Rolling of Steel Sheets (1 of a series of 6) (B)</u></p> <p>7 min Snd Col Source: USS (*) (FL)</p> <p><u>Making Metals Behave (B,C)</u></p> <p>25 min Snd Col Source: Assoc. Films (*) (FL)</p> <p><u>Martensitic Transformation of Nickel-Chromium-Steel (B)</u></p> <p>5 1/2 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Metallurgical Background of Stainless Steel (B)</u></p> <p>39 min Snd Col Source: RSC (*) (FL)</p> <p><u>Metallurgy Plus (B)</u></p> <p>12 min Snd Col Source: MTPS (*) (FL)</p> <p><u>Metals and Nonmetals (B,C,D)</u></p> <p>11 min Snd B/W Source: PSU (**) (R)</p> <p><u>Modern Heat Treating Methods (B,C)</u></p> <p>15 min Snd Col Source: L&N (*) (FL)</p>	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
		<p><u>Sintering (A lab experiment) (C)</u> Objective: To study the effect of sintering on the hardness of metal compacts.</p> <p>One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)</p> <p><u>Wire Drawing (A lab experiment) (C)</u> Objective: To measure the wire drawing force as a function of material being drawn and die angle.</p> <p>One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)</p>

SUBJECT AREA 21 - PROCESSING: FORMING (SOLID: FORGING, SINTERING)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>The New Bethlehem Steel (B)</u> 20 min Snd Col Source: BSC (*) (FL)</p> <p><u>New Dimensions in Metals (B,C)</u> 10 min Snd Col Source: HPMC (**) (FL)</p> <p><u>No Trouble At All (B)</u> 32 min Snd Col Source: TC (*) (FL)</p> <p><u>Oxy-acetylene Cutting (B,C)</u> 10 min S11 Col Source: PSU-EC (**) (R)</p> <p><u>Pioneer of Progress (B,C)</u> 15 min Snd Col Source: AISC (*) (FL)</p> <p><u>Profiles of Steel (B)</u> 26 min Snd Col Source: MTPS (*) (FL)</p> <p><u>Semi-Finished Steel (one of a series of 5) (B)</u> 8 min Snd Col Source: USS (*) (FL)</p> <p><u>Special Properties of Stainless Steel (B)</u> 40 min Snd Col Source: RSC (*) (FL)</p> <p><u>Stainless Steel: Metallurgical Background (one of a series) (B)</u> 39 min Snd Col Source: RSC (*) (FL)</p>	

SUBJECT AREA 21 - PROCESSING: FORMING (SOLID: FORGING, SINTERING)

PRINT	MEDIA	SUPER 8 FILM
	<p><u>Stainless Steel: Deep Drawing</u> (one of a series) (B) 38 min Snd Col Source: RSC (*) (FL)</p> <p><u>Steel (B)</u> 33 min Snd Col Source: ISC (*) (FL)</p> <p><u>Steel and America - A New Look</u> (B) 28 min Snd Col Source: AIS, (*) (FL)</p> <p><u>Steelmaking Today (B)</u> 29 min Snd Col Source: BM (*) (FL)</p> <p><u>Story of Stainless Steel (B)</u> 27 min Snd Col Source: MTPS (*) (FL)</p> <p><u>Tensile Stress of Deep-drawing</u> <u>St VII 23 Sheet Metal (B)</u> 8 1/2 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>This is Steel (B)</u> 33 min Snd Col Source: MTPS (*) (FL)</p> <p><u>To Be Forged (B,C)</u> 18 min Snd Col Source: MTPS (*) (FL)</p> <p><u>Tool Steel for Cold Work (B)</u> 16 min Snd Col Source: MTPS (*) (FL)</p> <p><u>Trip Steel (B)</u> 11 min Snd Col Source: AEC (**) (FL)</p>	

SUBJECT AREA 21 - PROCESSING: FORMING (SOLID: FORGING, SINTERING)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM..
	<p><u>Vacuum Pouring for Better Forgings (B,C)</u> 15 min Snd Col Source: MTPS (*) (FL)</p> <p><u>Extra High Voltage Cables (C)</u> 15 min Snd Col Source: RMC (*) (FL)</p> <p><u>Heat Treatment of Aluminum Part I (C)</u> 19 min Snd B/W Source: PSU (**) (R)</p> <p><u>Heat Treatment of Aluminum Part II (C)</u> 24 min Snd B/W Source: PSU (**) (R)</p> <p><u>High Temperature Microscopy (C)</u> 23 min Snd Col Source: Hacker (**) (FL)</p> <p><u>Research on Cobalt (C)</u> 8 min Snd Col Source: GIC (**) (FL)</p> <p><u>The Science of Making Brass (C)</u> No time given Snd Col Source: Chase (*) (FL)</p> <p><u>Solidification of Metallic Melts (C)</u> 11 min Sll B/W Source: PSU-EC (**) (R)</p> <p><u>Porcelain-A Materials Heritage (Section of Open University Course) (D)</u> 26 min Snd Col Source: H&R (P) AS (R) (*)</p>	

SUBJECT AREA 21 - PROCESSING: FORMING (SOLID: FORMING, SINTERING)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p>Breakthrough (F)</p> <p>9 min Snd Col</p> <p>Source: MEC</p> <p>(*) (FL)</p>	

SUBJECT AREA 22 - PROCESSING: FORMING (FLUID: CASTING, EXTRUDING, CVD)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>The Fundamentals of Metal Casting (B,C)</u> (A programmed technical mini-course)</p> <p>Approx. one week's study 200 pp Source: ASM (*) (P)</p> <p><u>Heat-resistant Castings, Corrosion-resistant Castings, Their Engineering Properties and Applications (B,C)</u></p> <p>Research review module, 60 pp Source: INCO (**) (F)</p> <p><u>Plastics - Their Use in Manufacturing (E)</u></p> <p>Course consists of: 2 Programmed texts 1 Exhibit book 1 On the job handbook 8 Packets of hands on materials</p> <p>Approx 10 weeks of study Source: SME (**) (P)</p>	<p><u>Equiaxed Zone Formation in Castings, An Explanation Based on Dendritic Remelting (A)</u></p> <p>10 min Sll B/W Source: BTL (**) (FL)</p> <p><u>Eutectic Solidification in Transparent Materials (A)</u></p> <p>13 min Sll B/W Source: BTL (**) (FL)</p> <p><u>Extrusion (A)</u></p> <p>10 min Snd Col Source: B&W (*) (FL)</p> <p><u>Extrusion - Materials Flow (A)</u></p> <p>7 1/2 min Col Sll Source: PSU-EC (**) (R)</p> <p><u>Looking at Materials #6: High Pressure (A)</u></p> <p>20 min Snd B/W Source: PSU (**) (R)</p> <p><u>Vacuum Melting (A)</u></p> <p>15 min Snd Col Source: UCC (*) (FL)</p> <p><u>Caststeel - "Engineering Flexibility" (B)</u></p> <p>30 min Snd Col Source: SFS (*) (FL)</p> <p><u>Cast Iron - Biography of a Metal (B)</u></p> <p>27 min Snd Col Source: RM (*) (FL)</p> <p><u>Chemistry of Iron and Steel (1 of a series of 5) (B)</u></p> <p>14 min Snd Col Source: USS (*) (FL)</p>	<p><u>Addition Polymerization (E)</u></p> <p>TC 3 min Sll Col Source: BEC (**) (P)</p> <p><u>Plastics (E)</u></p> <p>TC 4 min Sll Col Source: LONG (*) (P)</p>

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<p><u>New Materials (Section of Open University Course) (A)</u> 20 min tape only Source: H & R (*) (P)</p> <p><u>Strength in Shape--Through Steel Casting Design (B)</u> FS Col 1 11 min Snd/disc Source: SPS (*) (FL)</p> <p><u>Extrusion Theory (E)</u> 22 Slids No tape Col Source: SPE (**) (FL)</p> <p><u>The Fabulous Necklace (E)</u> 88 Slids Col 18 min tape Source: U of A (*) (FL)</p> <p><u>Silicone Elastomers (E)</u> 18 Slids No tape Source: SPE (**) (FL)</p>	<p><u>Metal Forming (R.C.)</u> 30 min Snd Col 3/4" Cassette Source: SME (**) (RP)</p> <p><u>Polymers (Lesson B) Introduction to Materials Science (set of 16 V's) (E)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)</p>	<p><u>Plastics - Their Use in Manufacturing (E)</u> Course consisting of: 8 Packets of hands on material 1 On the job handbook 1 Exhibit book 2 Programmed texts Approx 10 weeks of study Source: SME (**) (P)</p>

SUBJECT AREA 22 - PROCESSING: FORMING (FLUID: CASTING, EXTRUDING, CYD)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Drama of Metal Forming (B,C)</u> 28 min Snd Col Source: Shell (*) (FL)</p> <p><u>Ferrite Precipitation in Chromium Steel (B)</u> 4 min Sil B/W Source: PSU-EC (**) (R)</p> <p><u>Induction Stirred Ladle Vacuum Degassing (B)</u> 15 min Snd Col Source: RSC (*) (FL)</p> <p><u>Iron Making (B)</u> 13 min Snd B/W Source: PSU (**) (R)</p> <p><u>Jewels for Industry (B)</u> 14 1/2 min Snd Col Source: SSCC (*) (FL)</p> <p><u>Melting of Miron Die Steel (B)</u> 19 min Snd Col Source: ALSC (*) (FL)</p> <p><u>Metallurgy Plus (B)</u> 12 min Snd Col Source: MTPS (*) (FL)</p> <p><u>Modern Steel Making (B)</u> 23 min Snd Col Source: USS (*) (FL)</p> <p><u>Open Hearth Furnace (B)</u> 7 min Snd Col Source: USS (*) (FL)</p>	

SUBJECT AREA 22 - PROCESSING: FORMING (FLUID: CASTING, EXTRUDING, CVD)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Photoelastic Studies of Joined Sections in Steel Casting and Weldments (B)</u> 27 min Snd B/W Source: SFS (*) (FL)</p> <p><u>Preparation of White Cast Iron Standard (B)</u> 16 min Snd Col Source: USBS (*) (FL)</p> <p><u>Semi-Finished Steel (one of a series of 5) (B)</u> 8 min Snd Col Source: USS (*) (FL)</p> <p><u>Special Properties of Stainless Steel (B)</u> 40 min Snd Col Source: RSC (*) (FL)</p> <p><u>Stainless Steel: Metallurgical Background (one of a series) (B)</u> 39 min Snd Col Source: RSC (*) (FL)</p> <p><u>Steel (B)</u> 33 min Snd Col Source: ISC (*) (FL)</p> <p><u>Steel and America - A New Look (B)</u> 28 min Snd Col Source: AIS (*) (FL)</p> <p><u>Steelmaking Today (B)</u> 29 min Snd Col Source: BM (*) (FL)</p> <p><u>Story of the Chilled Car Wheel (B)</u> 38 min Snd Col Source: Purdue (*) (R)</p>	

SUBJECT AREA 22 - PROCESSING: FORMING (FLUID: CASTING, EXTRUDING, CVD)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Tensile Stress of GGG-50 Cast Iron (B)</u> 5 min Sll. B/W Source: PSU-EC (**) (R)</p> <p><u>The Use and Care of Twist Drills (B)</u> 23 min Snd Col Source: MTRS (*) (FL)</p> <p><u>Vacuum Pouring for Better Forgings (B,C)</u> 15 min Snd Col Source: MTPS (*) (FL)</p> <p><u>Vacuum Steel (B)</u> 4 1/2 min Sll Col Source: PSU-EC (**) (R)</p> <p><u>Better Alloys by Vacuum Melting (C)</u> 17 min Snd Col Source: Coe (**) (FL)</p> <p><u>Copper - Mining and Smelting (C)</u> 10 min Snd Col Source: BF (*) (R)</p> <p><u>Copper Mining in Zambia (C)</u> 25 min Snd Col Source: AMC (*) (FL)</p> <p><u>Copper - Mining, Smelting, and Refining (C)</u> 35 min Snd Col Source: MSU (*) (R)</p> <p><u>Copper Network (C)</u> 27 min Snd Col Source: BM (*) (FL)</p>	

SUBJECT AREA 22 - PROCESSING: FORMING (FLUID: CASTING, EXTRUDING, CVD)

MEDIA		
PRINT	.16 mm FILM	SUPER 8 FILM
	<p><u>Copper - Oldest Modern Metal</u> (C) 27 min Snd Col Source: BM (*) (FL)</p> <p><u>Copper Smelting</u> (C) 15 min Sll B/W Source: PSU (**) (R)</p> <p><u>Die Casting: How Else Would You Make It?</u> (E) 39 min Snd Col Source: PSU (**) (R)</p> <p><u>Investment Casting</u> (C) 25 min Snd Col Source: CIC (*) (FL)</p> <p><u>Lead - From Mine to Metal</u> (C) 28 min Snd Col Source: BM (*) (FL)</p> <p><u>A Product of the Imagination</u> (C) 26 min Snd Col Source: ACA (*) (FL)</p> <p><u>PPG: Glass for the Seventies</u> (D,G) 12 min Snd Col Source: MTPS (*) (FL)</p> <p><u>Naturally, It's Rubber</u> (E) 24 min Snd Col Source: MRB (*) (FL)</p> <p><u>Our Polymer World</u> (E) 22 min Snd Col Source: Polysar (*) (FL)</p>	

SUBJECT AREA 22 - PROCESSING: FORMING (FLUID: CASTING, EXTRUDING, CVD)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Plastics: Industrial Processes and Products (E)</u> 24 min Snd Col Source: PSU (**) (R)</p> <p><u>Polysulfides for Industry (E)</u> 18 min Snd Col Source: Thiokol (*) (FL)</p> <p><u>Looking at Materials: #2: Composites (I)</u> 30 min Snd B/W Source: PSU (**) (R)</p>	

SUBJECT AREA 23 - PROCESSING: FORMING (FINISHING: GRINDING, COATING)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>Corrosion Testing of Electro-deposited Coatings (B,C)</u> Research review module, 8 pp. Source: INCO (**) (F)</p> <p><u>Materials for Light-Duty Electrical Contacts (C)</u> Research review module, 16 pp. Source: INCO (**) (F)</p> <p><u>Nickel Plating - Processes and Properties of Deposits (C)</u> Research review module, 64 pp. Source: INCO (**) (F)</p> <p><u>Plastics - Their Use in Manufacturing (E)</u> Course consisting of: 2 Programmed texts 1 Exhibit book 1 On the job Handbook 8 Packets of hands on materials Approx 10 weeks of study Source: SME (**) (P)</p>	<p><u>Abrasion of the Cutting Edge in Milling of Wooden Materials (B,H)</u> 10 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Advanced Technology in Specialty Steel (B)</u> 14 min Snd Col Source: UCC (**) (FL)</p> <p><u>Blacksmith for the Stars (B,C)</u> 17 min Snd Col Source: Hyman (*) (FL)</p> <p><u>Hot Dip Galvanizing After Fabrication (B)</u> 12 min Snd Col Source: AHOGA (*) (FL)</p> <p><u>Machining of C45W3 Steel (B)</u> 9 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Machining of Various Types of Cast Iron - (Chip Formation) (4 films in all) (B)</u> 4 1/2 - 5 min each S11 B/W Source: PSU-EC (*) (R)</p> <p><u>Machining of Various Types of Steel - (Chip Formation and Cutting Process) (14 films in all) (B)</u> From 4-12 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Metallographic Sample Preparation--Coarse Grinding (B,C)</u> 9 min Snd Col Source: Buehler (*) (FL)</p>	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
	<p><u>Flame Sprayed Coating (B,C,D)</u> 30 min Snd Col 3/4" Cassette Source: SME (**) (RP)</p> <p><u>Metal Removal (B,C)</u> 30 min Snd Col 3/4" Cassette Source: SME (**) (RP)</p> <p><u>Powder Coating (B,C,D)</u> 52 min Snd Col 3/4" Cassette Source: SME (**) (RP)</p>	<p><u>Chip Formation (A lab experiment) (B,C)</u> Objective: To illustrate the various types of chips that can be produced during machining and to examine the effect of lubrication on chip formation. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)</p> <p><u>Measurement of Cutting Temperature (A lab experiment) (B)</u> Objective: To determine the relative effects of changes in cutting speed and feed rate on the cutting temperature. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)</p> <p><u>Roughness of Turned Surfaces (A lab experiment) (B)</u> Objective: To illustrate the relative magnitudes of the natural and ideal surface roughness in a turning operation and to examine the effects of cutting speed on natural surface roughness. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)</p> <p><u>Tool Wear (A lab experiment) (B)</u> Objective: To measure flank wear on a cutting tool during a turning test. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)</p>

SUBJECT AREA 23 - PROCESSING: FORMING (FINISHING: GRINDING, COATING)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Metallographic Sample Preparation--Fine Grinding (B,C)</u> 8 min Snd Col Source: Buehler (*) (FL)</p> <p><u>Metallographic Sample Preparation--Mounting (B,C)</u> 13 min Snd Col Source: Buehler (*) (FL)</p> <p><u>Metallographic Sample Preparation--Rough and Final Polishing (B,C)</u> 25 min Snd Col Source: Buehler (*) (FL)</p> <p><u>Metallographic Sample Preparation--Sectioning (B,C)</u> 9 min Snd Col Source: Buehler (*) (FL)</p> <p><u>The New Bethlehem Steel (B)</u> 20 min Snd Col Source: BSC (*) (FL)</p> <p><u>No Trouble At All (B)</u></p>	
	<p>32 min Snd Col Source: TC (*) (FL)</p> <p><u>Stainless Steel: Finishing (one of a series) (B)</u> 27 min Snd Col Source: RSC (*) (FL)</p> <p><u>Turning of High Speed Steel (B)</u> 7 min Sil B/W Source: PSU-EC (**) (R)</p> <p><u>Zinc Controls Corrosion (B,C)</u> 38 min Snd Col Source: MTPS (*) (FL)</p>	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
		<p><u>Effect of Tool Rake Angle on Orthogonal Machining (A lab experiment) (C)</u></p> <p>Objective: To investigate the effect of changes in tool rake angle α, on the specific cutting pressure P_s, the shear angle ϕ, the apparent shear strength of the work material S, and the mean friction angle β.</p> <p>One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author</p> <p>Source: JR (*) (F)</p> <p><u>Effects of Speed and Feed in Orthogonal Machining (A lab experiment) (C)</u></p> <p>Objective: To measure the effect that changes in cutting speed and feed have on the various parameters in orthogonal cutting.</p> <p>One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author</p> <p>Source: JR (*) (F)</p> <p><u>Lubricating Effect of Cutting Fluids (A lab experiment) (C)</u></p> <p>Objective: To illustrate the effect on dry cutting conditions of the application of a chemical compound by observing the changes in the tool forces and the cutting ratio.</p> <p>One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author</p> <p>Source: JR (*) (F)</p>

SUBJECT AREA 23 - PROCESSING: FORMING (FINISHING, GRINDING, COATING)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Die Casting: How Easy Would You Make It? (C)</u> 39 min Snd Col Source: PSU (**) (R)</p> <p><u>Machining of No 58 F 5) Brass (C)</u> 4 1/2 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Machining of the AlCuMgPb Aluminum Alloy - (Chip Formation and Cutting Process) (4 films in all (C)</u> 6 - 7 min each S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Machining of the G-AlSi 12 Cast Aluminum Alloy (C)</u> 5 1/2 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>A Product of the Imagination (C)</u> 26 min Snd Col Source: ACA (*) (FL)</p> <p><u>The Science of Making Brass (C)</u> No time given Snd Col Source: Chase (*) (FL)</p> <p><u>Cutting of Glass with a Diamond Cutting Tool (D.B)</u> 5 1/2 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Petrography--Ceremography Sample Preparation (D)</u> 26 min Snd Col Source: Buehler (*) (FL)</p>	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
		<p><u>Plastics - Their Use in Manu- facturing (E)</u></p> <p>Course consisting of:</p> <ul style="list-style-type: none"> 8 Packets of hands on mater- ial 1 On the job handbook 1 Exhibit book 2 Programmed texts <p>Approx 10 weeks of study</p> <p>Source: SME</p> <p>(**) (P)</p>

SUBJECT AREA 23 - PROCESSING: FORMING (FINISHING: GRINDING, COATING)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Porcelain-A Materials Heritage (Section of Open University Course) (D)</u> 25 min Snd Col Source: HAR (P) AS (R) (*)</p> <p><u>Machining of Hard Polyvinylchloride (E)</u> 4 1/2 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Machining of 6 Polyamide (E)</u> 7 1/2 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Machining of Type VV-3110 Vulcanized Fiber (E)</u> 7 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Breakthrough (F)</u> 9 min Snd Col Source: WEC (*) (FL)</p> <p><u>Fire Retardant Treated Wood (H)</u> 20 min Snd Col Source: AMPI (*) (FL)</p> <p><u>Looking at Materials: #2: Composites (I)</u> 30 min Snd B/W Source: PSU (**) (R)</p>	

SUBJECT AREA 24 - PROCESSING: FORMING (JOINING)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>Fundamentals of Adhesive Bonding (A)</u> (A programmed technical mini-course) Approx one weeks study 117 pp Source: ASM (*) (P)</p> <p><u>Modulus of Elasticity-Flexure (A)</u> Experiment with pre-gaged beam Student workbook, notes for instructor Approx 2 hr unit Source: VRE (*) (P)</p> <p><u>Basic Fastening and Joining Techniques (B,C)</u> (A programmed technical mini-course) Approx 1 weeks study, 117 pp Source: ASM (*) (P)</p> <p><u>Welding and Brazing of Copper-Nickel Alloys (C)</u> Research review module, 8 pp Source: INCO (**) (F)</p> <p><u>Non-Metallic Materials (D,E, G,I)</u> (Volume 3 of a five-part course on Materials Technology) Workbook and VTs 11 sessions, approx 2-3 weeks study Source: SL (*) (SA)</p> <p><u>Plastic Pipe Saddle Design (E)</u> (Case Study) 43 pp, Order No. ECL 126 (From Engineering Case Library)</p>	<p><u>Adhesion-Bonding of Glass to Metal (B,C,D,I)</u> 7 1/2 min S11 Col Source: PSU-EC (**) (FL)</p> <p><u>Frontiers of Friction (B,C)</u> 18 min Snd Col Source: Shell (*) (FL)</p> <p><u>Hands of the Giants (B,C)</u> 30 min Snd Col Source: Wyman (**) (FL)</p> <p><u>Photoelastic Studies of Joined Sections in Steel Castings and Weldments (B)</u> 27 min Snd B/W Source: SFS (**) (FL)</p> <p><u>Resistance Welding Stainless Steels (B)</u> 21 min Snd Col Source: ALSC (*) (FL)</p> <p><u>Solving Metal Joining Problems through Brazing (B,C)</u> 17 min Snd Col Source: PSU (**) (R)</p> <p><u>Spotwelding of St 13-03 Deep Drawing Sheet Metal (2 films) (B)</u> 11 min S11 Col Source: PSU-EC (**) (R)</p> <p><u>Story of Arc Welding (B,C)</u> 24 min Snd Col Source: BM (*) (FL)</p> <p><u>The Differences in Copper (B,C)</u> 15 min Snd Col Source: AMC (*) (FL)</p>	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
	<p><u>Joining (A)</u> 30 min. Snd. Col 3/4" Cassette Source: SME (**) (RP)</p> <p><u>Non-Metallic Materials</u> (Volume 3 of a five-part course on Materials Technology) (D,E,G,I) VT's and workbook 11 sessions, approx. 2-3 week's study Source: SL (*) (SA)</p>	

SUBJECT AREA 24 - PROCESSING: FORMING (JOINING)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Fundamentals of Silver Alloy Brazing (C)</u> 18 min Snd Col Source: PSU (**) (R)</p> <p><u>Infab Processing Refractory Metals (C)</u> 15 min Snd Col Source: UCC (**) (FL)</p> <p><u>Tensile Stress of NiCr20TiAl - PM140 High Temperature Soldered Joints (C)</u> 13 min Sll B/W Source: PSU-EC (**) (R)</p> <p><u>This is Eutalloy (C)</u> 20 min Snd Col Source: EMAC (*) (FL)</p> <p><u>Welding Advances with Aluminum (C)</u> 28 min Snd Col Source: ACA (*) (FL)</p> <p><u>Welding Aluminum with Mig & Tig (C)</u> 28 min Snd Col Source: RMC (*) (FL)</p>	

SUBJECT AREA 25 - PROPERTIES: THERMAL

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>Skin of Concord, The (A)</u> (Section of Open University Course) Approx 6 hr module, 84 pp Source: H&R (*) (P)</p> <p><u>Heat-resistant Castings, Corrosion-resistant Castings Their Engineering Properties and Applications (B,C)</u> Research review module, 60 pp Source: INCO (**) (F)</p> <p><u>Heat Transfer Through Metallic Walls (B,C)</u> Research review module, 12 pp Source: INCO (**) (F)</p> <p><u>Nickel Plating-Processes and Properties of Deposits (C)</u> Research review module, 64 pp Source: INCO (**) (F)</p> <p><u>Platinum Group Metals in Industry, The (C)</u> Research review module, 20 pp Source: INCO (**) (F)</p>	<p><u>Cohcorde (A)</u> (Section of Open University Course) 25 min Snd Col Source: H&R (P) & AS (R) (*)</p> <p><u>Cryogenics (A)</u> 30 min Snd B/W Source: PSU (**) (R)</p> <p><u>High Temperature Materials HQ4 (A)</u> 12 min Snd Col Source: NASA (**) (FL)</p> <p><u>Photoconductive Effect (A)</u> 16 min Snd B/W Source: PSU (**) (R)</p> <p><u>Tensile Stress of the NiCr20Ti-Al Nickel Alloy at Increased Temperatures (C)</u> 9 1/2 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Tensile Stress of NiCr20TiAl-PdNi40 High Temperature Soldered Joints (C)</u> 13 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Tensile Stress of 99.6 Pure Nickel at Increased Temperatures (C)</u> 9 1/2 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Carbon and Its Compounds (D)</u> 10 min Snd B/W Source: PSU (**) (R)</p> <p><u>Fahrenheit 3300 (D)</u> 28 min Snd Col Source: BM (*) (FL)</p>	<p><u>Melting Points (A)</u> r/r 3 min S11 Col Source: AIM (*) (P)</p> <p><u>Melting Temperature of a Pure Substance (A)</u> TC, r/r 4 min S11 Col Source: EFL (*) (P)</p> <p><u>Properties of a Covalently Bonded Molecule (A)</u> TC 4 min S11 Col Source: EBEC (**) (P)</p> <p><u>Thermal Expansion of Gases (A)</u> TC, r/r 4 min S11 Col Source: EFL (*) (P)</p> <p><u>Thermal Expansion of Liquids (A)</u> TC, r/r 4 min S11 Col Source: EFL (*) (P)</p> <p><u>Thermal Expansion of Solids (A)</u> TC, r/r 4 min S11 Col Source: EFL (*) (P)</p> <p><u>Propellant Burning Studies (E)</u> No data Available Source: JPL (**) (P)</p>

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Thermal and Chemical Properties: (A)</u> <u>Thermal Expansion and Conductivity</u> <u>Heat Capacity</u> <u>Energy Changes in Phase Transformations</u> <u>Temperature Effects</u> <u>Electrical Thermal Coupling</u> <u>Heat Treatment</u> 54 Slids 56 min. tape Source: Ruoff & PC (**) (P) <u>Heat Treatment Series (B,C)</u> 9 Slids No tape Source: ASM (**) (P) <u>The Designer's Knowledge of Polymers (Section of Open University Course) (E)</u> 20 min tape only Source: HAR (*) (P) <u>Extrusion Theory (E)</u> 22 Slids No tape Col Source: SPE (**) (FL) <u>Heat Sealing of Plastic Sheet Material (E)</u> 28 Slids No tape Col Source: SPE (*) (FL) <u>Polymers (II): (E)</u> <u>Thermoplastic and Thermosetting Polymers</u> 15 Slids 25 min tape Source: Ruoff & PC (**) (P) <u>Thermal Analysis (E)</u> 22 Slids No tape Source: SPE (**) (FL)		

SUBJECT AREA 25 - PROPERTIES: THERMAL

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Heat and Its Control (D)</u> 20 min Snd Col Source: BM (*) (FL)</p> <p><u>A Problem of Shock (D,G)</u> 9 min Snd Col Source: ASM (*) (R)</p> <p><u>The Poetry of Polymers (E)</u> 27 min Snd Col Source: NAC (*) (FL)</p>	
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SUBJECT AREA 26 - PROPERTIES: MECHANICAL (ELASTIC, PLASTIC, FRACTURE)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>Cantilever Flexure (A)</u> Experiment with pre-gaged beam Student workbook, Notes for instructor Approx 2 hr unit Source: VRE (*) (P)</p> <p><u>Constant Stress Beams (A)</u> Experiment with pre-gaged beam Student workbook, notes for instructor Approx 2 hr unit Source: VRE (*) (P)</p> <p><u>Fracture Mechanics (A)</u> Workbook with 2 ATs Approx 2 hrs Source: AIAA (**) (P)</p> <p><u>Mechanical Behavior (A)</u> (Volume 2 of a five-part course on Materials Technology) Workbook and VTs 11 sessions, approx. 2-3 weeks study Source: SL (*) (SA)</p> <p><u>Modulus of Elasticity-Flexure (A)</u> Experiment with pre-gaged beam Student workbook, notes for instructor Approx 2 hr unit Source: VRE (*) (P)</p> <p><u>Poissons Ratio-Flexure (A)</u> Experiment with pre-gaged beam Student workbook, notes for instructor Approx 2 hr unit Source: VRE (*) (P)</p>	<p><u>Concorde (A)</u> (Section of Open University Course) 25 min Snd Col Source: H&R (P) & AS (R) (*)</p> <p><u>Crystals--An Introduction (A)</u> 25 min Snd Col Source: BTL (*) (FL)</p> <p><u>Dislocations (A)</u> 38 min Snd Col Source: HJM (*) (RP)</p> <p><u>Dislocations Illustrated (A)</u> 15 min Snd Col Source: MLS (*) (RP)</p> <p><u>Dislocations in Graphite (A)</u> 25 min Snd Col Source: Atomics Intl. (**) (FL)</p> <p><u>Eutectic Solidification in Transparent Materials (A)</u> 13 min Sll B/W Source: BTL (**) (FL)</p> <p><u>Hardness Testing (A)</u> 16 min Snd Col Source: Purdue (**) (R)</p> <p><u>High Temperature Materials HQ4 (A)</u> 12 min Snd Col Source: NASA (**) (FL)</p> <p><u>Hooke's Law - Young's Modulus (A)</u> 9 min Snd Col Source: Purdue (**) (FL)</p>	<p><u>Crystals--Physical Properties (A)</u> TC 4 min Sll Col Source: Thorne (*) (P)</p> <p><u>Solid Solutions (C)</u> TC 4 min Sll B/W Source: SET R (*) (P)</p> <p><u>Plastics (E)</u> TC 4 min Sll Col Source: LONG (*) (P)</p> <p><u>Polymer Science (3 films) (E)</u> TC 4 min Sll Col Source: ACCC (**) (P)</p>

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Dislocations (A)</u> 28 Slids No tape From 16 mm film of same title (q.v.) Source: HAM (*) (P)	<u>Amorphous and Molecular Structures (Lesson 7) Introduction to Materials Science (set of 16 VT's) (A)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UMEX (*) (P)	<u>Stress and Strain Concentration (A)</u> 32 OT's in color, Teaching Manual Approx 2 hour unit Source: VRE (*) (P)
<u>Fracture Mechanics (A)</u> Tape only with workbook Approx. 2 hours Source: AIAA (**) (P)	<u>Basic Strength and Mechanics of Materials for Craftsmen and Designers (A Course) (A)</u> 20 VT's each 1 hour in length 3/4" Cassette Snd B/W 111 page study book Source: GSI (*) (RP)	<u>Stress and Strain at a Point (A)</u> 26 OT's in color, Teaching Manual Approx 2. hour unit Source: VRE (*) (P)
<u>How to Apply Photoelastic Coatings (A)</u> 60 Slids No tape Approx. 2 hour unit Col Source: VRE (*) (P)	<u>Internal Structure (Lesson 1) Introduction to Materials Science (set of 16 VT's) (A)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UMEX (*) (P)	<u>Tension Test (A lab experiment) (A)</u> Objective: Determine tensile stress-strain properties for variety of materials. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)
<u>How to Install Strain Gages with Certified M-Bond 200 Adhesive (A)</u> 60 Slids No tape Approx. 2 hour unit Col Source: VRE (*) (P)	<u>Introduction to Engineering Materials (A Course) (A)</u> 23 VT's each 1 hour Snd B/W 3/4" Cassette Source: GSI (*) (RP)	<u>Brittle to Ductile Transition (A lab experiment) (B,C)</u> Objective: To study the transition to brittle behavior in materials as a function of temperature. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)
<u>Mechanical Properties: Flow and Internal Friction (A)</u> 13 Slids 19 min tape Source: Ruoff & PC (**) (P)	<u>Mechanical Behavior of Solids (A Course) (A)</u> 24 VT's each 50 min Snd B/W 3/4" Cassette & 2" Quad Source: UIUC (*) (P)	<u>Hardness Test (A lab experiment) (B,C)</u> Objective: To study the indentation hardness of various metals. One of 23 lab experiments offered in NSF Report and under Grant GY-4709 available from author Source: JR (*) (F)
<u>Micro- and Macro-Structure: Composite Materials (I)</u> 53 Slids 41 min tape Source: Ruoff & PC (*) (P)	<u>Strength of Materials (A Course for Engineers) (A)</u> 22 VT's each 1 hour Snd B/W 3/4" Cassette 149 page study book Source: GSI (*) (RP)	
<u>New Materials (Section of Open University Course) (A)</u> 20 min tape only Source: H & R (*) (P)	<u>Structure-Property Relationships in Single-Phase Metals I (Lesson 12) Introduction to Materials Science (set of 16 VT's) (B,C)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UMEX (*) (P)	
<u>Phase Diagrams (I): Age Precipitation Hardening (C)</u> 36 Slids 53 min tape Source: Ruoff & PC (*) (P)		

SUBJECT AREA 26 - PROPERTIES: MECHANICAL (ELASTIC, PLASTIC, FRACTURE)

PRINT	MEDIA	
	16 mm FILM	SUPER 8 FILM
<p><u>Principal Strains and Stresses-Flexure (A)</u> Experiment with pre-gaged beam Student workbook, notes for instructor Approx 2 hr unit Source: VRE (*) (P)</p> <p><u>Skin of Concorde, The (A)</u> (Section of Open University Course) Approx 6 hr module, 84 pp Source: HAR (*) (P)</p> <p><u>Solids Under Stress (A)</u> (Section of Open University Course) Approx 6 hr module, 56 pp Source: HAR (*) (P)</p> <p><u>Stress and Strain Concentration (A)</u> Experiment with pre-gaged beam Student workbook, notes for instructor Approx 2 hr unit Source: VRE (*) (P)</p> <p><u>Strong Materials: Electrons and Waves (A)</u> (Section of Open University Course) Approx 6 hr module, 104 pp Source: HAR (*) (P)</p> <p><u>Alloy Design, Using Second Phases (B,C)</u> Research review module, 24 pp Source: INCO (**) (F)</p> <p><u>Application and Design of Ductile Iron Drawing and Forming Dies, The (B,C)</u> Research review module, 8 pp Source: INCO (**) (F)</p>	<p><u>Properties of Materials (A)</u> Series of six films 1. <u>Loads on Structures</u> 2. <u>Behavior of Structural Materials</u> 3. <u>Tensile and Compressive Structures</u> 4. <u>Beams and Frames</u> 5. <u>Grids and Plates</u> 6. <u>Membranes and Shells</u> 20 min (ea.) Snd Col Source: McGraw Hill (*) (P)</p> <p><u>Response to Mechanical Shock (A)</u> 18 min Snd Col Source: SI, AEC (**) (FL)</p> <p><u>Scanning Fractures with the Electron Microscope (A)</u> 15 min Snd Col Source: MCIG (*) (R)</p> <p><u>Strength of Materials Laboratory (A)</u> Series of ten films 1. <u>Deformations and Strains</u> 2. <u>Loads and Stresses</u> 3. <u>Tension Test, Part I</u> 4. <u>Tension Test, Part II</u> 5. <u>Compression and Buckling</u> 6. <u>Bending</u> 7. <u>Torsion</u> 8. <u>Hardness and Impact Tests</u> 9. <u>Creep</u> 10. <u>Fatigue</u> 10 - 15 min Snd Col Source: McGraw Hill (*) (P)</p> <p><u>Tensile and Compressive Structures (A)</u> 27 min Snd Col Source: PSU (**) (R)</p> <p><u>Tensile Testing (A)</u> (Section of Open University Course) 25 min Snd B/W Source: HAR (P) & AS (R) (*)</p>	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Photoelastic Coating - Case Histories (A)</u> 60 Slids No tape Approx. 2 hour unit Col Source: VRE (*) (P)	<u>Structure-Property Relationships in Single-Phase Metals II (Lesson 13) Introduction to Materials Science (set of 16 VT's) (B,C)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	<u>Heat Treatment of Steel (A lab experiment) (B)</u> Objective: To study the effect of cooling rate on the hardness and microstructure of a low and high carbon steel. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)
<u>Photoelastic Models - Case Histories (A)</u> 60 Slids No tape Approx. 2 hour unit Col Source: VRE (*) (P)	<u>Structure-Property Relationships in Multiphase Alloys (Lesson 16) Introduction to Materials Science (set of 16 VT's) (B,C)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	<u>Microstructure Examination (A lab experiment) (B,C)</u> Objective: To study the microstructure of a variety of single-phase materials One of 23 lab experiments offered in NSF Report and under Grant GY-4709 and available from author Source: JR (*) (F)
<u>Properties and Relevance of Materials (A)</u> 29 Slids 40 min tape Source: Ruoff & PC (*) (P)	<u>Structure-Sensitive Properties (Lesson 2) Introduction to Materials Science (set of 16 VT's) (B,C)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	<u>Tool Wear (A lab experiment) (B)</u> Objective: To measure flank wear on a cutting tool during a turning test. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)
<u>Strengthening Mechanisms (I) (A)</u> <u>Degree and Limits of Strengthening</u> <u>Weakness of Bulk Materials</u> <u>Strengthening Concepts</u> <u>Solute Strengthening</u> <u>Strain Hardening</u> <u>Strengthening by Grain Boundaries</u> <u>Second Phase Strengthening</u> 44 Slids 57 min tape Source: Ruoff & PC (*) (P)	<u>Polymers (Lesson 8) Introduction to Materials Science (set of 16 VT's) (E)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	<u>Bending (A lab experiment) (C)</u> Objective: To measure the force-penetration curve on bending and compare to analysis. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)
<u>Strengthening Mechanisms (II) (B)</u> <u>Martensitic Transformations</u> <u>Strengthening at High Temperatures (A)</u> <u>Strengthening in Polymers (E)</u> <u>Strengthening of Viscous Matrices (D,I)</u> 16 Slids 37 min tape Source: Ruoff & PC (**) (P)	<u>Polymer Science (E)</u> <u>Herman Mark presents the Fundamentals of Polymer Science</u> 3 VT's 80 min total Snd Col 3/4" Cassette Source: MRL (*) (P)	<u>Applied Plasticity (A Course) (A)</u> 24 VT's each 1 hour Snd B/W 3/4" Cassette Source: GSI (**), (RP)
<u>Heat Treatment Series (B,C)</u> 9 Slids No tape Source: ASM (**) (P)		

SUBJECT AREA 26 - PROPERTIES: MECHANICAL (ELASTIC, PLASTIC, FRACTURE)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>Basic Metallurgy (B,C)</u> (A programmed technical mini-course) Approx 1 weeks study, 260 pp Source: ASM (*) (P)</p> <p><u>Brittle Fracture and Structural Failure of Liberty Ships During WW II (B)</u> (Case Study) 57 pp, Order No. ECL 1007 (From Engineering Case Library) Source: ECP (*) (P)</p> <p><u>Development of a Cast Monoflow Turbine Wheel, The (B)</u> (Case Study) 30 pp, Order No. ECL 183 (From Engineering Case Library) Source: ECP (**) (P)</p> <p><u>Development of a New Drill Steel (B) (Case Study)</u> 20 pp, Order No. ECL 94 (From Engineering Case Library) Source: ECP (*) (P)</p> <p><u>Fracture of a Marine Gear Rim (B) (Case Study)</u> 31 pp, Order No. ECL 80 (From Engineering Case Library) Source: ECP (*) (P)</p> <p><u>Fundamentals of Indentation Hardness Testing (B,C) (A programmed technical mini-course)</u> Approx 1 weeks study, 171 pp Source: ASM (*) (P)</p>	<p><u>Tension Testing (A)</u> 21 min Snd B/W Source: NAC (*) (RP)</p> <p><u>A World of Structures (A)</u> 20 min Snd Col Source: McGraw Hill (*) (P)</p> <p><u>Advanced Technology in Specialty Steel (B)</u> 14 min Snd Col Source: UCC (**) (FL)</p> <p><u>Blacksmith for the Stars (B,C)</u> 17 min Snd Col Source: Wyman (*) (FL)</p> <p><u>Chemistry of Iron and Steel (I of a series of 5) (B)</u> 14 min Snd Col Source: USS (*) (FL)</p> <p><u>Concepts of Dislocations (B,C)</u> 7 min Snd Col Source: PSU (**) (R)</p> <p><u>Deformation of Crystalline Materials (Part I) (B,C)</u> 5 min Snd Col Source: PSU (**) (R)</p> <p><u>Deformation of Crystalline Materials (Part II) (B,C)</u> 6 min Snd Col Source: PSU (**) (R)</p> <p><u>Drama of Steel (B)</u> 34 min Snd Col Source: BM (*) (FL)</p>	

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MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Mechanical Properties: Deformation (D.C)</u> 29 Slids 46 min tape Source: Ruoff & PC (*) (P)	<u>Glass (Lesson 9) Introduction to Materials Science (set of 16 V's) (G)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UNEX (*) (P)	<u>Cold Work - Anneal (A-lab experiment) (C)</u> Objective: To measure changes in mechanical properties during cold work and annealing of cartridge brass. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)
<u>Fiberglass Reinforced Plastics (D.E.I)</u> 38 Slids No tape Col Source: SPE (**) (FL)	<u>Non-Metallic Materials (Volume 3 of a five-part course on Materials Technology) (D,E,G,I)</u> VT's and workbook 11 sessions, approx. 2-3 week's study Source: SL (*) (SA)	<u>Creep of Metals (A lab experiment) (C)</u> Objective: To study creep deformation of metals One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)
<u>A Breakdown in Plastics (E)</u> AT only No time given Source: ACS (*) (P)	<u>Mechanical Behavior (Volume 2 of a five-part course on Materials Technology) (A)</u> VT's and workbook 11 sessions, approx. 2-3 week's study Source: SL (*) (SA)	<u>Precipitation Hardening (A lab experiment) (C)</u> Objective: To study precipitation hardening in Muntz metal One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)
<u>New Dimensions for Polymers (E)</u> AT only No time given Source: ACS (*) (P)	<u>Materials Science: The Relationships between Structure and Properties (A)</u> Approx. 40 min Snd B/W 3/4" Cassette Source: MBI (*) (P)	<u>Sintering (A lab experiment)(C)</u> Objective: To study the effect of sintering on the hardness of metal compacts. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)
<u>The Fabulous Necklace (E)</u> 99 Slids Col 18 min tape Source: U of A (*) (FL)		
<u>Foam Construction (E)</u> 36 Slids No tape Col Source: SPE (*) (FL)		

SUBJECT AREA 26 - PROPERTIES: MECHANICAL (ELASTIC, PLASTIC, FRACTURE)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>Material Selection and Casting Problems of a High-Speed Camshaft (B) (Case Study)</u> 40 pp, Order No. ECL 59 (From Engineering Case Library) Source: ECP (**) (P)</p> <p><u>Mechanical and Physical Properties of the Austenitic Chromium-Nickel Stainless Steels at Ambient Temperature (B,C)</u> Research review module, 44 pp Source: INCO (**) (F)</p> <p><u>Metal Implants for Orthopedic and Dental Surgery (B,J)</u> 55 page report, 47 figures and tables, related to film <u>Ceramics and Metals in Medical Prosthetics (q.v.)</u> Source: MCIC (**) (P)</p> <p><u>Nickel in Gray Iron-Influence on Structure and Properties (B,C)</u> Research review module, 16 pp Source: INCO (**) (F)</p> <p><u>Pickel Pasteurizer Shaft Failure (B) (Case Study)</u> 12 pp, Order No. ECL 152 (From Engineering Case Library) Source: ECP (*) (P)</p> <p><u>Problem of the Perverse Pigeon (B) (Case Study)</u> 18 pp, Order No. ECL 135 (From Engineering Case Library) Source: ECP (*) (P)</p> <p><u>Redesign of a Liquid Nitrogen Container (B,C,E) (Case Study)</u></p>	<p><u>Elements of Hardening (B)</u> 15 min Snd B/W Source: PSU (**) (R)</p> <p><u>Elements of Surface Hardening (B)</u> 14 min Snd B/W Source: PSU (**) (R)</p> <p><u>Fun in Metals (B,C)</u> 35 min Snd Col Source: ASM (*) (R)</p> <p><u>Grease, The Magic Film (B,C)</u> 26 min Snd Col Source: NLGI (*) (FL)</p> <p><u>Heat Treatment of Steel (B)</u> 34 min Snd Col Source: OSU (**) (R)</p> <p><u>How Metals Behave (B,C)</u> 30 min Snd Col Source: ASM (*) (R)</p> <p><u>Introduction to Strengthening Materials (B,C)</u> 6 min Snd Col Source: PSU (**) (R)</p> <p><u>Men, Steel and Earthquakes (B)</u> 28 min Snd Col Source: AISC (*) (FL)</p> <p><u>Metal Crystals in Action (B,C)</u> 30 min Snd Col Source: ASM (*) (R)</p> <p><u>Solving Metal Joining Problems through Brazing (B,C)</u> 17 min Snd Col Source: PSU (**) (R)</p>	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Form in Packaging (E)</u> 27 Slides No tape Col Source: SPE (*) (FL)		<u>Plastics - Their Use in Manufacturing (E)</u> Course consisting of: 8 Packets of hands on material 1 On the job handbook 1 Exhibit book 2 Programmed texts Approx 10 weeks of study Source: SPE (**) (P)
<u>Micrograph Curing (E)</u> 24 Slides No tape Col Source: SPE (*) (FL)		<u>Viscoelastic Behavior (A lab experiment) (E)</u> Objective: To study viscoelastic behavior in silicone putty. One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)
<u>Polysulfide Elastomers (E)</u> 18 Slides No tape Source: SPE (**) (FL)		<u>Strength of Glass (A lab experiment) (G)</u> Objective: To study the effect of surface treatment on the strength of glass One of 23 lab experiments offered in NSF Report under Grant GY-4709 and available from author Source: JR (*) (F)
<u>Rubber Elastomers (E)</u> 29 Slides No tape Source: SPE (*) (FL)		
<u>Silicone Elastomers (E)</u> 18 Slides No tape Source: SPE (**) (FL)		
<u>Stress Analysis (E)</u> 16 Slides No tape Source: SPE (**) (FL)		
<u>How Wood Dries (H)</u> 30 min tape 76 Slides Source: SFOSU (*) (RP)		
<u>Penetration of Liquids into Wood (H)</u> 20 min tape 80 Slides Source: SFOSU (*) (RP)		
<u>Pressure Wood-Preserving Processes (H)</u> 24 min tape 119 Slides Source: SFOSU (*) (RP)		

SUBJECT AREA 26 - PROPERTIES: MECHANICAL (ELASTIC, PLASTIC, FRACTURE)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<u>Redesign of a Liquid Nitrogen Container (B,C,E) (Case Study)</u> 35 pp, Order No. ECL 72 (From Engineering Case Library) Source: ECP (*) (P)	<u>Special Properties of Stainless Steel (B)</u> 40 min Snd Col Source: RSC (*) (FL)	
<u>Role of Nickel in Carburizing Steel, The (B,C)</u> Research review module, 12 pp Source: INCO (**) (F)	<u>Stainless Steel: Specific properties of 3-classes of stainless steels (one of a series) (B)</u> 40 min Snd Col Source: RSC (*) (FL)	
<u>Strengthening Mechanisms in Nickel-Base Superalloys (B,C)</u> Research review module, 28 pp Source: INCO (**) (F)	<u>Story of Stainless Steel (B)</u> 27 min Snd Col Source: MTPS (*) (FL)	
<u>Transformer Core (B) (Section of Open University Course)</u> Approx 6 hr module, 92 pp Source: H&R (*) (P)	<u>Story of the Chilled Car Wheel (B)</u> 38 min Snd Col Source: Purdue (*) (R)	
<u>Platinum--The Metal, Its Properties and Applications (C)</u> Research review module, 28 pp Source: INCO (**) (F)	<u>Tensile Stress of Deep-drawing St VII 23 Sheet Metal (B)</u> 8 1/2 min Sll B/W Source: PSU-EC (**) (R)	
<u>Platinum Group Metals in Industry, The (C)</u> Research review module, 20 pp Source: INCO (**) (F)	<u>Tensile Stress of GGG-50 Cast Iron (B)</u> 5 min Sll B/W Source: PSU-EC (**) (R)	
<u>Ceramics for Prosthetic Applications (D,J)</u> 30 page report, 6 figures and tables, related to film, <u>Ceramics and Metals in Medical Prosthetics (Q.V.)</u> Source: MCIC (**) (P)	<u>Tensile Stress of Notched Flatbars (B,F)</u> 11 min Sll Col Source: PSU-EC (**) (R)	
<u>Failure of a Rotating Mirror (D,G) (Case Study)</u> 28 pp, Order No. ECL 30 (From Engineering Case Library) Source: ECP (*) (P)	<u>Tension Testing (B)</u> 21 min Snd Col Source: Purdue (*) (R)	
	<u>Tool Steel for Cold Work (B)</u> 5 min Snd Col Source: MTPS (*) (FL)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<p><u>Word Structure (H)</u> 36 min tape 114 Slides Source: SFOSU (*) (RP)</p>		

SUBJECT AREA 26 - PROPERTIES: MECHANICAL (ELASTIC, PLASTIC, FRACTURE)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>Non-Metallic Materials (D.E. 6.1)</u> (Vol. 3 of a five-part course on Materials Technology)</p> <p>Workbook and VTs 11 sessions, approx 2-3 weeks study Source: SL (*) (SA)</p> <p><u>Chemistry of Macromolecules (E)</u> (One of three modules in an ACS Interactive Course designed primarily for continuing education. Course title: Polymer Science and Technology)</p> <p>Approx 3-4 weeks study time (128 pp of text plus some 50 pp of work assign.) Source: ACS (**) (P)</p> <p><u>Flippin' Motorbike, The (E)</u> (Case Study)</p> <p>11 pp, Order No. ECL 148 (From Engineering Case Library) Source: ECP (*) (P)</p> <p><u>Fundamentals of Plastics, The (E)</u> (A programmed technical mini-course)</p> <p>Approx one weeks study, 144 pp Source: ASM (*) (P)</p> <p><u>Plastics--Their Use in Manufacturing (E)</u></p> <p>Course consisting of: 2 Programmed texts 1 Exhibit book 1 On the job handbook 8 Packets of hands on materials</p> <p>Approx 10 weeks study Source: SME (**) (P)</p> <p><u>Spontaneous Fracture (E)</u> (Case Study)</p> <p>18 pp, Order No. ECL 169 (From Engineering Case Library) Source: ECP (*) (P)</p>	<p><u>Trip Steel (B)</u></p> <p>11 min Snd Col Source: AEC (**) (FL)</p> <p><u>The Use and Care of Twist Drills (B)</u></p> <p>23 min Snd Col Source: MTPS (*) (FL)</p> <p><u>Atomic Metallurgy (C)</u></p> <p>18 min Snd Col Source: AEC (**) (FL)</p> <p><u>Chemistry of Aluminum (C)</u></p> <p>16 min Snd Col Source: RMC (*) (FL)</p> <p><u>Control (C)</u></p> <p>23 min Snd Col Source: FSI (**) (FL)</p> <p><u>Copper (C)</u></p> <p>37 min Snd Col Source: Assoc. Films (*) (FL)</p> <p><u>The Differences in Copper (C)</u></p> <p>15 min Snd Col Source: AMC (*) (FL)</p> <p><u>Dislocations in Alpha Brass (C)</u></p> <p>15 min S11 Col Source: M&R (**) (FL)</p> <p><u>Dislocation Movements (C)</u></p> <p>9 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Fatigue Test (C)</u></p> <p>3 1/2 min S11 B/W Source: PSU-EC (**) (R)</p>	

SUBJECT AREA 26 - PROPERTIES: MECHANICAL (ELASTIC, PLASTIC, FRACTURE)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Heat Treatment of Aluminum:</u> <u>Part I (C)</u> 19 min Snd B/W Source: PSU (**) (R)</p> <p><u>Heat Treatment of Aluminum</u> <u>Part II (C)</u> 24 min Snd B/W Source: PSU (**) (R)</p> <p><u>The Lead Matrix (C)</u> 27 min Snd Col Source: ASF, RM, LIA (*) (FL)</p> <p><u>Micro-deformation of Uranium</u> <u>(C)</u> 17 min Snd Col Source: AEC (**) (FL)</p> <p><u>Tensile Stress of High Purity</u> <u>Aluminum Al 99, 99R (C)</u> 9 min Sil B/W Source: PSU-EC (**) (R)</p> <p><u>Tensile Stress of the NiCr20Ti-</u> <u>Al Nickel Alloy at Increased</u> <u>Temperatures (C)</u> 9 1/2 min Sil B/W Source: PSU-EC (**) (R)</p> <p><u>Tensile Stress of NiCr20TiAl -</u> <u>PdNi40 High Temperature Soldered</u> <u>Joints (C)</u> 13 min Sil B/W Source: PSU-EC (**) (R)</p> <p><u>Tensile Stress of Pure Anneal-</u> <u>ed Zinc Zn99, 99 (C)</u> 8 min Sil B/W Source: PSU-EC (**) (R)</p> <p><u>Tensile Stress of Pure Rolled</u> <u>Zinc Zn99, 99 (C)</u> 8 1/2 min Sil B/W Source: PSU-EC (**) (R)</p>	

SUBJECT AREA 26 - PROPERTIES: MECHANICAL (ELASTIC, PLASTIC, FRACTURE)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Tensile Stress of 99.6 Pure Nickel at Increased Temperatures (C)</u> 9 1/2 min .S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Tensile Stress of Sf-Cu Copper (C)</u> 8 1/2 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Torsional Strain in Metals (C)</u> (2 films - with and without Snd) 11 - 12 min B/W Source: PSU-EC (**) (R)</p> <p><u>The Working of Magnesium (C)</u> 20 min Snd Col Source: Dow (**) (FL)</p> <p><u>Carbon and Its Compounds (D)</u> 10 min Snd B/W Source: PSU (*) (R)</p> <p><u>Ceramics and Electronics (D)</u> 22 min Snd Col Source: PSU (**) (R)</p> <p><u>Cutting of Glass with a Diamond Cutting Tool (D,G) -</u> 5 1/2 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Deformation of Glass with Scratching Tools - (Various Phenomena) (3 films in all) (D,G)</u> 4 - 5 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Engineering with Glass (D,G)</u> 28 min Snd Col Source: ASF (*) (FL)</p>	

SUBJECT AREA 26 - PROPERTIES: MECHANICAL (ELASTIC, PLASTIC, FRACTURE)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>PPG: Glass for the Seventies</u> (D,E) 12 min Snd Col Source: MTPS (*) (FL)</p> <p><u>Tensile and Bending Stress in Glass Fiber Reinforced Synthetics</u> (D,E,G,I) 9 min S11 Col Source: PSU-EC (**) (R)</p> <p><u>For Every Wheel That Rolls</u> (E) 26 min Snd Col Source: ASF (*) (FL)</p> <p><u>Machining of Hard Polyvinylchloride</u> (E) 4 1/2 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Machining of 6 Polyamide</u> (E) 7 1/2 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Machining of Type Vt 3110 Vulcanized Fiber</u> (E) 7 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Naturally, It's Rubber</u> (E) 24 min Snd Col Source: MRB (*) (FL)</p> <p><u>Origin and Synthesis of Plastics Materials</u> (E,I) 16 min Snd B/W Source: PSU (**) (R)</p> <p><u>Our Polymer World</u> (E) 22 min Snd Col Source: Polysar (*) (FL)</p>	

SUBJECT AREA 26 - PROPERTIES: MECHANICAL (ELASTIC, PLASTIC, FRACTURE)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Physical Chemistry of Polymers (E)</u> 22 min Snd Col Source: BTL (**) (FL)</p> <p><u>The Poetry of Polymers (E)</u> 27 min Snd Col Source: NAC (*) (FL)</p> <p><u>Polysulfides for Industry (E)</u> 18 min Snd Col Source: Thiokol (*) (FL)</p> <p><u>Report on Du Pont Elastomers (E)</u> 29 min Snd Col Source: DDC (*) (FL)</p> <p><u>Rubber by Design (E)</u> 27 min Snd Col Source: SFL (*) (FL)</p> <p><u>The Way it is with Man-Made Fibers (E)</u> 27 min Snd Col Source: DDC (*) (FL)</p> <p><u>Looking at Materials: #2: Composites (I)</u> 30 min Snd B/W Source: PSU (**) (R)</p>	

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SUBJECT AREA 27 - PROPERTIES: ACOUSTIC

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p>Solar Cells (F) (Section of Open University Course) Approx 6 hr module, 136 pp Source: H&R (*) (P)</p>		

SUBJECT AREA 28 - PROPERTIES: OPTICAL

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<u>Failure of a Rotating Mirror (O,E) (Case Study)</u> 28 pp. Order No. ECL 30 (From Engineering Case Library) Source: ECP (*) (P)	<u>The Conquest of Light (Laser) (A)</u> 10 min Snd Col Source: BTL (*) (FL) <u>Introduction to Lasers (A)</u> 17 min Snd Col Source: BTL (*) (FL) <u>The Laser, A Light Fantastic (A)</u> 21 min Snd Col Source: PSU (*) (R) <u>Laser - The Light of the Future (A)</u> 30 min Snd B/W Source: PSU (**) (R) <u>Laser Safety (A)</u> 19 min Snd Col Source: PSU (*) (R) <u>Lasers Unlimited (A)</u> 10 min Snd Col Source: BTL (*) (FL) <u>Photoconductive Effect (A)</u> 16 min Snd B/W Source: PSU (**) (R) <u>Principles of the Optical Maser (A)</u> 30 min Snd Col Source: BTL (*) (FL) <u>Fiber Optics (O,E)</u> 30 min Snd B/W Source: PSU (**) (R) <u>Looking at Materials #5: Ceramics (D)</u> 30 min Snd B/W Source: PSU (**) (R)	<u>Crystals-Optical Properties (A)</u> TC 3 min S11 Col Source: Thorne (**) (P) <u>Streaming Birefringence (A)</u> TC, r/r 4 min S11 Col Source: Wiley (**) (P)

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Optical Communications (A)</u> AT only No time given Source: ACS (*) (P)	<u>Fiber Optics (D,E)</u> 1 30 min tape Snd B/W 3/4" Cassette Source: AAAS (**) (P)	
<u>Electrons in Condensed Phases</u> <u>(III):</u> <u>Lasers (A)</u> 20 Slids 40 min tape Source: Ruoff & PC (**) (P)	<u>Optoelectronics (A two-part course) (F)</u> Part 1-Optoelectronic Emitters, Sensors and Couplers Part 2-Optoelectronic Displays 18 VT's each 1/2 hour Snd Col 3/4" Cassette Source: TI (**) (P)	
<u>Liquid Crystals: A Bright Promise (K)</u> AT only No time given Source: ACS (*) (P)		

SUBJECT AREA 28 - PROPERTIES: OPTICAL

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Solar Cells (Section of Open University Course) (F)</u></p> <p>25 min Snd Col Source: HAR (P) AS (R) (*)</p> <p><u>Solar Cells-The Physics (Section of Open University Course) (F)</u></p> <p>25 min Snd B/W Source: HAR (P) AS (R) (*)</p>	

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SUBJECT AREA 29 - PROPERTIES: ELECTRICAL (DIELECTRIC)

PRINT	MEDIA	
	16 mm FILM	SUPER 8 FILM
<u>Materials for Light-Duty Electrical Contacts (C)</u> Research review module, 16 pp Source: INCO (**) (F)	<u>Capacitance (A)</u> 31 min Snd B/W Source: PSU (*) (R)	<u>Acceleration of Charge Carriers (F)</u> TC 2 min S11 Col Source: SETCO (**) (P)
<u>Ordinary Electronic Properties of Metals (C,F)</u> A Resource Letter, Vol. 36, No. 9, 12 pp Source: AJP/ATP (**) (P)	<u>Field Emission of Electrons (A)</u> 4 min Snd B/W Source: PSU (**) (R)	<u>The Asymmetrical P-N Junction (F)</u> TC 2 min S11 Col Source: SETCO (**) (P)
<u>Electrons in Solids (F)</u> (Section of Open University Course) Approx. 6 hr module, 64 pp Source: H&R (*) (P)	<u>Introduction to Superconductivity (A)</u> 48 min Snd B/W Source: PSU (**) (R)	<u>The Barrier Width of a Crystal Diode (F)</u> TC 2 min S11 Col Source: SETCO (**) (P)
<u>Solar Cells (F)</u> (Section of Open University Course) Approx 6 hr module, 136 pp Source: H&R (*) (P)	<u>Natural Gas Fuel Cell (A)</u> 20 min Snd Col Source: BUG (*) (FL)	<u>Conduction in N- and P- Type Crystals (F)</u> TC 2 min S11 Col Source: SETCO (**) (P)
<u>Electronic Materials (F)</u> (Volume 4 of a five-part course on Materials Technology) Workbook and video tapes 8 sessions, approx 2 weeks study Source: SL (*) (SA)	<u>Shapes and Polarities of Molecules (A)</u> 18 min Snd Col Source: PSU (**) (R)	<u>Conduction in Pure Crystals (F)</u> TC 1 min S11 Col Source: SETCO (**) (P)
	<u>Silicon and Its Compounds (A)</u> 14 min Snd Col Source: PSU (**) (R)	<u>The Equilibrium State of the P-N Junction (F)</u> TC 2 min S11 Col Source: SETCO (**) (P)
	<u>Temperature and Matter (A)</u> 15 min Snd Col Source: PSU (*) (R)	<u>The Formation of a Barrier in a P-N Crystal (F)</u> TC 2 min S11 Col Source: SETCO (**) (P)
	<u>Fun in Metals (B,C)</u> 35 min Snd Col Source: ASM (*) (R)	<u>The Formation of N-Type Crystals (F)</u> TC 2 min S11 Col Source: SETCO (**) (P)
	<u>The Hall Effect (B,C,F)</u> 9 min Snd Col Source: PSU (**) (R)	<u>The Formation of P-Type Crystals (F)</u> TC 2 min S11 Col Source: SETCO (**) (P)
	<u>How Metals Behave (B,C)</u> 30 min Snd Col Source: ASM (*) (R)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Electric Properties:</u> <u>Ohm's Law (A)</u> <u>Thermal Coefficient (A)</u> <u>Metals and Semiconductors (B,C)</u> <u>Insulators (D)</u> <u>Special Dielectrics (D)</u> 30 Slides 49 min tape Source: Ruoff & PC (**) (P)	<u>Designing with Microprocessors (A Course) (F)</u> 16 VT's each 1/2 hour Snd Col 3/4" Cassette Source: TI (**) (P)	
<u>Electro Chemical Properties (A)</u> <u>Half Cell Potentials</u> <u>Polarization and Overvoltage</u> 22 Slides 46 min tape Source: Ruoff & PC (*) (P)	<u>Linear and Interface Integrated Circuits (A two-part course) (F)</u> <u>Part 1-Linear Integrated Circuits</u> <u>Part 2-Interface Integrated Circuits</u> 20 VT's each 1/2 hour Snd Col 3/4" Cassette Source: TI (**) (P)	
<u>Electrons in Condensed Phases (A)</u> <u>Conductivity</u> 24 Slides 49 min tape Source: Ruoff & PC (**) (P)	<u>MOS Integrated Circuits (A Course) (F)</u> 20 VT's each 1/2 hour Snd Col 3/4" Cassette Source: TI (**) (P)	
<u>Superconductivity: (A)</u> <u>Superconducting State and Fundamental Concepts</u> <u>Collective de Broglie Wave</u> <u>Magnetic Flux Quantization</u> <u>Type I vs Type II Superconductors</u> <u>Fluxoid Pinning</u> 31 Slides 37 min tape Source: Ruoff & PC (**) (P)	<u>Optoelectronics (A two-part course) (F)</u> <u>Part 1-Optoelectronic Emitters, Sensors and Couplers</u> <u>Part 2-Optoelectronic Displays</u> 18 VT's each 1/2 hour Snd Col 3/4" Cassette Source: TI (**) (P)	
<u>Thermal and Chemical Properties (A)</u> <u>Electrical Thermal Coupling</u> 54 Slides 56 min tape Source: Ruoff & PC (**) (P)	<u>Semiconductor Memories (A Course) (F)</u> 11 VT's each 1 hour Snd Col 3/4" Cassette Source: TI (**) (P)	
<u>Electrical and Magnetic Properties Series (B,C,F)</u> 21 Slides No tape Source: ASM (**) (P)	<u>Understanding Semiconductors (A Course) (F)</u> 12 VT's each 1 hour Snd Col 3/4" Cassette Source: TI (*) (P)	

SUBJECT AREA 29 - PROPERTIES: ELECTRICAL (DIELECTRIC)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>Electronic Materials (F)</u> (Volume 4 of a five-part course on Materials Technology)</p> <p>Workbook and VTs 8 sessions, approx 2 weeks study</p> <p>Source: SL (*) (SA)</p> <p><u>Electrons in Solids (F)</u> (Section of Open University Course)</p> <p>Approx 6 hr module, 64 pp</p> <p>Source: H&R (*) (P)</p> <p><u>Solar Cells (F)</u> (Section of Open University Course)</p> <p>Approx 6 hr module, 136 pp</p> <p>Source: H&R (*) (P)</p>	<p><u>The Transformer Core I (Section of Open University Course) (B)</u></p> <p>25 min Snd B/W</p> <p>Source: H&R (P) & AS (R) (*)</p> <p><u>The Transformer Core II (Section of Open University course) (B)</u></p> <p>25 min Snd B/W</p> <p>Source: H&R (P) & AS (R) (*)</p> <p><u>The Differences in Copper (C)</u></p> <p>15 min Snd Col</p> <p>Source: AMC (*) (FL)</p> <p><u>Domain Structures in Superconductors (C)</u></p> <p>5 min S11 B/W</p> <p>Source: PSU-EC (**) (R)</p> <p><u>Extra High Voltage Cables (C)</u></p> <p>15 min Snd Col</p> <p>Source: RMC (*) (FL)</p> <p><u>Ceramics and Electronics (D)</u></p> <p>22 min Snd Col</p> <p>Source: PSU (**) (R)</p> <p><u>Brattain on Semiconductor Physics (F)</u></p> <p>3D min Snd B/W</p> <p>Source: BTL (**) (FL)</p> <p><u>Breakthrough (F)</u></p> <p>9 min Snd Col</p> <p>Source: WEC (*) (FL)</p> <p><u>Dynamic Field Distributions in Gunn-Effect Devices (F)</u></p> <p>12 min S11 B/W</p> <p>Source: BTL (**) (FL)</p>	<p><u>Generation of Charge Carriers (F)</u></p> <p>TC 1 min S11 Col</p> <p>Source: SETCO (**) (P)</p> <p><u>Light and Electrons (F)</u></p> <p>TC 4 min S11 B/W</p> <p>Source: EBEC (*) (P)</p> <p><u>The P-N-P Crystal (F)</u></p> <p>TC 2 min S11 Col</p> <p>Source: SETCO (**) (P)</p> <p><u>Recombination of Charge Carriers (F)</u></p> <p>TC 1 min S11 Col</p> <p>Source: SETCO (**) (P)</p> <p><u>Rectification of Crystal Diodes (F)</u></p> <p>TC 2 min S11 Col</p> <p>Source: SETCO (**) (P)</p> <p><u>The Transistor (F)</u></p> <p>TC 2 min S11 Col</p> <p>Source: SETCO (*) (P)</p>

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Magnetic Properties (C)</u> <u>Superconductors</u> 30 Slids 39 min tape Source: Ruoff & PC (**) (P)	<u>Electronic Materials</u> (Volume 4 of a five-part course on Mat- erials Technology) (F) VT's and workbook 8 sessions, approx. 2 week's study Source: SL (*) (SA)	
<u>Electrons in Condensed</u> <u>Phases (II):</u> <u>Intrinsic Semiconductors</u> (F) <u>Extrinsic Semiconductors</u> (F) <u>P-N Junction (F)</u> <u>Junction Transistor (F)</u> 20 Slids 40 min tape Source: Ruoff & PC (**) (P)		
<u>Liquid Crystals: A Bright</u> <u>Promise (K)</u> AT only No time given Source: ACS (*) (P)		

SUBJECT AREA 29 - PROPERTIES: ELECTRICAL (DIELECTRIC)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Electric Field and Carrier Density in a Bulk N-Gallium Arsenide Diode (F)</u> 5 min S11 B/W Source: BTL (**) (FL)</p> <p><u>Gap Energy and Recombination Light in Germanium (F)</u> 27 min Snd B/W Source: PSU (**) (R)</p> <p><u>Genesis of the Transistor (F)</u> 15 min Snd Col Source: BTL (*) (FL)</p> <p><u>I. C. A Shrinking World (F)</u> 16 min Snd Col Source: BTL (*) (FL)</p> <p><u>Integrated Electronics-A New Art (F)</u> 16 min Snd Col Source: BTL (*) (FL)</p> <p><u>An Interview with the Transistor's Inventors (F)</u> 14 min Snd Col Source: BTL (*) (FL)</p> <p><u>Low-Energy Electron Diffraction from Germanium (100) and (111) Surfaces (F)</u> 15 min S11 B/W Source: BTL (**) (FL)</p> <p><u>Micro (F)</u> 14 min Snd Col Source: MTPS, WEC (*) (FL)</p> <p><u>Minority Carriers in Semiconductors (F)</u> 26 min Snd B/W Source: PSU (**) (R)</p>	

SUBJECT AREA 29 - PROPERTIES: ELECTRICAL (DIELECTRIC)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Modern Transistor Fabrication</u> (F) 35 min Snd Col Source: BTL (*) (FL)</p> <p><u>Principles of the Transistor</u> (F) 21 min Snd B/W Source: PSU (*) (R)</p> <p><u>Printed Circuit Story</u> (F) 16 min Snd Col Source: PSU (*) (R)</p> <p><u>Semi-Conductors: Part I</u> (F) 21 min Snd B/W Source: PSU (**) (R)</p> <p><u>Semi-Conductors: Part II</u> (F) 22 min Snd B/W Source: PSU (**) (R)</p> <p><u>Solar Cells-The Physics</u> (Sec- tion of Open University Course) (F) 25 min Snd B/W Source: H&R (P) AS (R) (*)</p> <p><u>Solar Cells</u> (Section of Open University Course) (F) 25 min Snd Col Source: H&R (P) AS (R) (*)</p> <p><u>Superconductivity (An Intro- duction to)</u> (F) 48 min Snd Col Source: MSU (**) (R)</p> <p><u>Superconductivity</u> (F) 10 min Snd Col Source: IBM (**) (FL)</p>	

SUBJECT AREA 29 - PROPERTIES: ELECTRICAL (DIELECTRIC)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Transistor (F)</u> 27 min Snd Col Source: BTL (*) (FL)</p> <p><u>The Transistor (F)</u> 9 min Snd B/W Source: BTL (*) (FL)</p>	
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SUBJECT AREA 30 - PROPERTIES: MAGNETIC

PRINT	MEDIA	
	16 mm FILM	SUPER 8 FILM
<p><u>Transformer Core (B)</u> (Section of Open University Course)</p> <p>Approx. 6 hr module, 92 pp Source: H&R (*) (P)</p> <p><u>Electronic Materials (F)</u> (Volume 4 of a five-part course on Materials Technology)</p> <p>Workbook and video tapes 8 sessions, approx 2 weeks study Source: SL (*) (SA)</p>	<p><u>Temperature and Matter (A)</u> 15 min Snd Col Source: PSU (*) (R)</p> <p><u>Domains and Hysteresis in Ferromagnetic Materials (B)</u> 38 min Snd Col Source: BTL (**)</p> <p><u>Ferromagnetic Domains: (B)</u> <u>Part I-Magnetism and Domains</u> <u>Part II-How Domains are Formed (B)</u> 22 min Snd Col Source: BTL (**) (FL)</p> <p><u>Ferromagnetic Domains of Bulk Crystals: (B)</u> 1. <u>FeSi Single Crystal in a Rotating Field, FeSi Polycrystal in an Alternating Field</u> 5 min 2. <u>Magnetic Reversal of a (100)-FeSi Single Crystal</u> 9 1/2 min 3. <u>Magnetic Reversal of an (110)-FeSi Single Crystal</u> 5 1/2 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Ferromagnetic Films: (B)</u> 1. <u>Barkhausen Effect</u> 5 min 2. <u>Wall Creep</u> 10 min 3. <u>Wall Fluctuation</u> 8 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Formation of Ferromagnetic Domains (B)</u> 40 min Snd Col Source: BTL (**) (FL)</p> <p><u>Fun in Metals (B,C)</u> 35 min Snd Col Source: ASM (*) (R)</p>	<p><u>Ferromagnetic Domain Wall Motion (B)</u> TC, r/r 4 min S11 Col Source: SET Q (**) (P)</p>

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<p><u>Superconductivity: (A)</u> <u>Magnetic Flux Quantization</u> 31 Slids 37 min tape Source: Ruoff & PC (**) (P)</p> <p><u>Electrical and Magnetic Properties Series (B,C,F)</u> 21 Slids No tape Source: ASM (**) (P)</p> <p><u>The Formation of Ferromagnetic Domains (B)</u> 132 Frms FS 45 min Col 2 33 1/3 rpm discs Source: BTL (**) (FL)</p> <p><u>Magnetic Properties:</u> <u>Soft Ferromagnetics (B,D)</u> <u>Hard Magnetic Materials (B)</u> <u>Special Magnetic Materials (B,I)</u> <u>Superconductors (C)</u> 30 Slids 39 min tape Source: Ruoff & PC (**) (P)</p> <p><u>Magnetism (B,C)</u> <u>Diamagnetism, Paramagnetism</u> <u>Ferromagnetism, Antiferromagnetism</u> <u>Ferrimagnetism</u> <u>Domains and Magnetism According to Domain Theory</u> <u>Magnetic Bubbles</u> 44 Slids 54 min tape Source: Ruoff & PC (**) (P)</p>	<p><u>Electronic Materials (Volume 4 of a five-part course on Materials Technology) (F)</u> VT's and workbook 8 sessions, approx. 2 week's study Source: SL (*) (SA)</p>	

SUBJECT AREA 30 - PROPERTIES: MAGNETIC

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>How Metals Behave (B,C)</u> 30 min Snd Col Source: ASM (*) (R)</p> <p><u>Magnetic Reversal of Ferro- magnetics (B,C)</u> 7 min S11 B/W Source: PSU-EC (**) (R)</p> <p><u>Permanent Magnets (B,C)</u> 18 min Snd Col Source: CIC (*) (FL)</p> <p><u>The Transformer Core I (Sec- tion of Open University Course) (B)</u> 25 min Snd B/W Source: H&R (P) & AS (R) (*)</p> <p><u>The Transformer Core II (Sec- tion of Open University Course) (B)</u> 25 min Snd B/W Source: H&R (P) & AS (R) (*)</p> <p><u>Superconducting Magnets (C)</u> 12 1/2 min Snd Col Source: AEC (**) (FL)</p>	
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SUBJECT AREA 31 - PROPERTIES: CHEMICAL (CORROSION, ADHESION)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>The Fundamentals of Adhesive Bonding (A)</u> (A programmed technical mini-course) Approx. one week's study, 117 pp. Source: ASM (*) (P)</p> <p><u>Corrosion Testing of Electrodeposited Coatings (B,C)</u> Research review module, 8 pp Source: INCO (**) (F)</p> <p><u>Guidelines for Selection of Marine Materials (B,C)</u> Research review module, 40 pp Source: INCO (**) (F)</p> <p><u>Heat-resistant Castings, Corrosion-resistant Castings, Their Engineering Properties and Applications (B,C)</u> Research review module, 60 pp Source: INCO (**) (F)</p> <p><u>Heat Transfer Through Metallic Walls (B,C)</u> Research review module, 12 pp Source: INCO (**) (F)</p> <p><u>Materials Degradation (B,C)</u> (Volume 5 of a five-part course on Materials Technology) Workbook and W's 5 sessions, approx. 1 week's study Source: SL (*) (SA)</p> <p><u>Metals and Corrosion (B,C)</u> Research review module, 12 pp Source: INCO (**) (F)</p> <p><u>Nickel in Gray Iron - Influence on Structure and Properties (B,C)</u> Research review module, 16 pp Source: INCO (**) (F)</p>	<p><u>Catalysts (A)</u> 16 min Snd Col Source: PSU (**) (R)</p> <p><u>Shapes and Polarities of Molecules (A)</u> 18 min Snd Col Source: PSU (**) (R)</p> <p><u>Adhesion-Bonding of Glass to Metal (B,C,D,I)</u> 7 1/2 min S11 Col Source: PSU-EC (**) (R)</p> <p><u>Corrosion of Pure Iron--Initial Stages (B)</u> 8 min S11 B/W Source: PSU (**) (R)</p> <p><u>Filament Corrosion of Plain Steel in Humid Atmosphere (B)</u> 9 1/2 min S11 Col Source: PSU-EC (**) (R)</p> <p><u>Flow Dependent Corrosion of Plain Steel in Aqueous Salt Solutions (B)</u> 3 1/2 min S11 Col Source: PSU-EC (**) (R)</p> <p><u>Hot Dip Galvanizing After Fabrication (B)</u> 12 min Snd Col Source: AHDGA (*) (FL)</p> <p><u>Metals and Nonmetals (B,C,D)</u> 11 min Snd B/W Source: PSU (**) (R)</p> <p><u>Pitting (B)</u> 9 min Snd B/W Source: PSU (**) (R)</p>	<p><u>Corrosion I--Filliform Corrosion (B,C)</u> TC, r/r 4 min S11 Col Source: Wiley (*) (P)</p> <p><u>Corrosion II--Hydrogen Embrittlement (B,C)</u> TC, r/r 4 min S11 Col Source: Wiley (*) (P)</p> <p><u>Corrosion III--Aluminum (B,C)</u> TC, r/r 4 min S11 Col Source: Wiley (*) (P)</p> <p><u>Polymer Science (3 films) (E)</u> TC 4 min S11 Col Source: ACCC (**) (P)</p>

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Corrosion Series (A)</u> 17 Slides No tape Source: ASM (**) (P)	<u>Joining (A)</u> 30 min Snd Col 3/4" Cassette Source: SME (**) (RP)	
<u>Electro Chemical Properties (A)</u> <u>Half Cell Potentials</u> <u>Polarization and Overvoltage</u> <u>Corrosion and Protection</u> <u>Against Corrosion</u> 22 Slides 46 min tape Source: Ruoff & PC (*) (P)	<u>Polymer Science (E)</u> <u>Herman Mark presents the Fundamentals of Polymer Science</u> 3 VT's 80 min total Snd Col 3/4" Cassette Source: MRL (*) (P)	
<u>How to Install Strain Gages with Certified M-Bond 200 Adhesive (A)</u> 60 Slides No tape Approx. 2 hour unit Col Source: VRE (*) (P)	<u>Materials Degradation (Volume 5 of a five-part course on Materials Technology) (B,C)</u> VT's and workbook 5 sessions, approx. 1 week's study Source: SL (*) (SA)	
<u>Thermal and Chemical Properties (A)</u> <u>Chemical Properties</u> 54 Slides 56 min tape Source: Ruoff & PC (**) (P)	<u>Corrosion in Hamilton - A TV Field Trip (B,C)</u> Approx. 40 min Snd B/W 3/4" Cassette Source: MBI (*) (P)	
<u>Chemistry of Iron (B)</u> 35 Frames FS No tape Col Source: EPS (*) (FL)		
<u>Chemistry of Steel (B)</u> 50 Frames FS No tape Col Source: EPS (*) (FL)		
<u>A Breakdown in Plastics (E)</u> AT only No time given Source: ACS (*) (P)		
<u>New Dimensions for Polymers (E)</u> AT only No time given Source: ACS (*) (P)		

SUBJECT AREA 31 - PROPERTIES: CHEMICAL (CORROSION, ADHESION)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>Ocean Engineering Hardware Requires Copper-Nickel Alloys (B,C)</u></p> <p>Research review module, 36 pp Source: INCO (**) (F)</p> <p><u>Redesign of a Liquid Nitrogen Container (B,C,E) (Case study)</u></p> <p>35 pp, Order No. ECL-72 (From Engineering Case Library) Source: ECP (*) (P)</p> <p><u>Resistance of Nickel and High Nickel Alloys to Corrosion by Sulphuric Acid (B,C)</u></p> <p>Research review module, 44 pp Source: INCO (**) (F)</p> <p><u>Nickel Plating - Processes and Properties of Deposits (C)</u></p> <p>Research review module, 64 pp Source: INCO (**) (F)</p> <p><u>Platinum - The Metal, Its Properties and Applications (C)</u></p> <p>Research review module, 28 pp Source: INCO (**) (F)</p> <p><u>Chemistry of Macromolecules (E)</u></p> <p>One of 3 modules in an ACS Interactive Course designed primarily for continuing education. Course title: <u>Polymer Science and Technology</u></p> <p>Approx. 3-4 weeks study time (128 pp of text plus some 50 pp of work assignments) Source: ACS (**) (P)</p>	<p><u>Stainless Steel: Specific properties of 3-classes of stainless steels (one of a series) (B)</u></p> <p>40 min Snd Col Source: RSC (*) (FL)</p> <p><u>Stainless Steel: Care and Maintenance (one of a series) (B)</u></p> <p>27 min Snd Col Source: RSC (*) (FL)</p> <p><u>Story of Stainless Steel (B)</u></p> <p>27 min Snd Col Source: MTPS (*) (FL)</p> <p><u>Stress Corrosion in Stainless Steel (B)</u></p> <p>13 min Snd Col Source: OSU (**) (R)</p> <p><u>Zinc Controls Corrosion (B,C)</u></p> <p>38 min Snd Col Source: MTPS (*) (FL)</p> <p><u>Cathodic Protection with Galvanic Anodes (C)</u></p> <p>17 min Snd Col Source: Dow (*) (FL)</p> <p><u>Corrosion in Action: (C)</u> Series of three films</p> <ol style="list-style-type: none"> 1. <u>Nature of Corrosion</u> 20 min 2. <u>Corrosion Currents</u> 26 min 3. <u>Passivity</u> 17 min <p>Snd Col Source: Rothacker (*) (FL)</p> <p><u>Stress Corrosion in Magnesium Base Alloys (C)</u></p> <p>78 min Snd Col Source: OSU (**) (R)</p>	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<p><u>Corrosion (E)</u> 14 Slids No tape Col Source: SPE (**) (FL)</p> <p><u>Heat Sealing of Plastic Sheet Material (E)</u> 28 Slids No tape Col Source: SPE (*) (FL)</p> <p><u>Solubility Parameters (E)</u> 31 Slids No tape Source: SPE (**) (FL)</p> <p><u>Weathering of Plastics (E)</u> 20 Slids No tape Source: SPE (*) (FL)</p>		

SUBJECT AREA 31 - PROPERTIES: CHEMICAL (CORROSION, ADHESION)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>The Fundamentals of Plastics</u> (E) (A programmed technical mini-course) Approx. one week's study, 144 pp Source: ASM (*) (P)</p>	<p><u>The Working of Magnesium</u> (C) 20 min Snd Col Source: Dow (**) (FL)</p> <p><u>Physical Chemistry of Polymers</u> (E) 22 min Snd Col Source: BTL (**) (FL)</p> <p><u>Polysulfide Base Industrial Sealants</u> (E) 14 min Snd Col Source: Thiokol (*) (FL)</p> <p><u>Polysulfides for Industry</u> (E) 18 min Snd Col Source: Thiokol (*) (FL)</p> <p><u>Report on Du Pont Elastomers</u> (E) 29 min Snd Col Source: DDC (*) (FL)</p> <p><u>Rubber by Design</u> (E) 27 min Snd Col Source: SFL (*) (FL)</p>	

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SUBJECT AREA 32 - PROPERTIES: NUCLEAR (RADIATION EFFECTS)

PRINT	MEDIA	
	16 mm FILM	SUPER 8 FILM
	<p><u>Industrial Applications of Radioisotopes (A)</u> 57 min Snd Col Source: AEC (*) (FL)</p> <p><u>Nuclear Radiations - Uses in Industry (A)</u> 15 min Snd B/W Source: PSU (*) (R)</p> <p><u>Nuclear Reactor (A)</u> 9 min Snd B/W Source: PSU (**) (R)</p> <p><u>Research into Controlled Fusion (A)</u> 55 min Snd B/W Source: PSU (**) (R)</p>	

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MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<p><u>The Development of Materials</u> <u>Science-Bubbles and Bottle</u> <u>Shells (Section of Open Univ-</u> <u>ersity Course) (A)</u></p> <p>20 min tape only Source: H&R (*) (P)</p>		

SUBJECT AREA 33 - PROPERTIES: BIOLOGICAL

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>Metal Implants for Orthopedic and Dental Surgery (B,J)</u> 55 page report, 47 figures and tables, related to film Ceramics and Metals in Medical Prosthetics (q.v.) Source: MCIC (**) (P)</p> <p><u>Ceramics for Prosthetic Applications (D,J)</u> 30 page report, 6 figures and tables, related to film Ceramics and Metals in Medical Prosthetics (q.v.) Source: MCIC (**) (P)</p>	<p><u>Laser Safety (A)</u> 19 min Snd Col Source: PSU (*) (R)</p> <p><u>Ceramics and Metals in Medical Prosthetics (B,C,D,J)</u> 12 min Snd Col Source: MCIC (*) (RP)</p> <p><u>Artificial Gills (E,J)</u> 13 min S11 Col Source: GE (*) (FL)</p> <p><u>Initial Events of Blood Contact with Foreign Materials (J)</u> 20 min S11 Col Source: Calspan (*) (FL)</p>	

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MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<p>Polymers (II): (E)</p> <p><u>Macromolecules in Living Matter</u></p> <p>15 Slides 25 min tape</p> <p>Source: Ruoff & PC</p> <p>(**) (P)</p>		

SUBJECT AREA 34 - PROPERTIES: RHEOLOGICAL

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Rheological Behavior of Fluids</u> (A) 22 min Snd 8/W Source: EBEC (**) (R)</p> <p><u>Temperature and Matter</u> (A) 15 min Snd Col Source: PSU (*) (R)</p>	
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MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>How Wood Dries (H)</u> 30 min tape 76 Slids Source: SFOSU (*) (RP)		
<u>Penetration of Liquids into Wood (H)</u> 20 min tape 80 Slids Source: SFOSU (*) (RP)		
<u>Pressure Wood-Preserving Processes (H)</u> 24 min tape 119 Slids Source: SFOSU (*) (RP)		
	157	

SUBJECT AREA 35 - APPLICATIONS: MATERIALS SELECTION

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>Car Body (B,E)</u> (Section of Open University Course) Approx. 6 hr module, 136 pp Source: H&R (*) (P)</p> <p><u>Guidelines for Selection of Marine Materials (B,C)</u> Research review module, 40 pp Source: INCO (**) (F)</p> <p><u>Material Selection and Casting Problems of a High-Vacuum Coupling (B) (Case Study)</u> 49 pp, Order No. ECO 59 (From Engineering Case Library) Source: ECP (**) (P)</p> <p><u>Plastics - Their Use in Manufacturing (E)</u> Course consists of: 2 Programmed texts 1 Exhibit book 1 On the job handbook 8 Packets of hands on materials Approx 10 weeks of study Source: SME (**) (P)</p>	<p><u>Choosing a Material (A)</u> (Section of Open University Course) 25 min Snd B/W Source: H&R (P) & AS (R) (*)</p> <p><u>Fighting Fire with Science I & II (2 separate films) (A)</u> 30 min (ea.) Snd Col Source: KLEIN (*) (FL)</p> <p><u>Flexibility Underground (A)</u> 25 min Snd Col Source: Armco (*) (FL)</p> <p><u>High Temperature Materials HQ4 (A)</u> 12 min Snd Col Source: NASA (**) (FL)</p> <p><u>Materials - Key to Progress (A)</u> 17 min Snd Col Source: USAF (*) (FL)</p> <p><u>Pioneering for Tomorrow (A)</u> 28 1/2 min Snd B/W Source: DA (*) (FL)</p> <p><u>Story of the Modern Storage Battery (A)</u> 27 min Snd Col Source: ASF, BM (*) (FL)</p> <p><u>The Car Body: From Wood to Steel (B,H)</u> (Section of Open University Course) 25 min Snd Col Source: H&R (P) & AS (R) (*)</p> <p><u>Casteel - "Engineering Flexibility" (B)</u> 30 min Snd Col Source: SFS (*) (FL)</p>	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<p><u>New Materials for Spare Parts</u> (A) AT only No time given Source: ACS (*) (P)</p> <p><u>Waste Materials (Section of Open University Course)</u> (A) 20 min tape only Source: HAR (*) (P)</p>		<p><u>Selection of Materials (A lab experiment)</u> (A) Objectives: To study the fac- tors that enter into the se- lection of materials in design and to become familiar with the reference sources available in the library.</p> <p>One of 23 lab experiments offer- ed in NSF Report and under Grant GY-4709 and available from author Source: JR (*) (F)</p> <p><u>Plastics - Their Use in Manu- facturing</u> (E) Course consisting of: 8 Packets of hands on mater- ial 1 On the job handbook 1 Exhibit book 2 Programmed texts Approx 10 weeks of study Source: SME (**) (P)</p>

SUBJECT AREA 35 - APPLICATIONS: MATERIALS SELECTION

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Cast Iron - Biography of a Metal (B)</u> 27 min Snd Col Source: BM (*) (FL)</p> <p><u>Drama of Steel (B)</u> 34 min Snd Col Source: BM (*) (FL)</p> <p><u>Giant Step (B)</u> 12 min Snd Col Source: MEC (*) (FL)</p> <p><u>Hot Dip Galvanizing After Fabrication (B)</u> 12 min Snd Col Source: AHDGA (*) (FL)</p> <p><u>Men, Steel and Earthquakes (B)</u> 28 min Snd Col Source: AISC (*) (FL)</p> <p><u>Solving Metal Joining Problems through Brazing (B,C)</u> 17 min Snd Col Source: PSU (**) (R)</p> <p><u>These Men Know the Steel Business (B)</u> 20 min Snd Col Source: CTC (*) (FL)</p> <p><u>Control (C)</u> 23 min Snd Col Source: FSI (**) (FL)</p> <p><u>Extraordinary World of Zinc (C)</u> 27 min Snd Col Source: ASF, BM, ZII (*) (FL)</p>	

SUBJECT AREA 35 - APPLICATIONS: MATERIALS SELECTION

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Time for Tin (C)</u> 30 min Snd Col Source: MTPS (*) (FL)</p> <p><u>Engineering with Glass (D,G)</u> 28 min Snd Col Source: ASF (*) (FL)</p> <p><u>Fahrenheit 3300 (D)</u> 28 min Snd Col Source: BM (*) (FL)</p> <p><u>Milk Bottles, A Choice of Containers (Section of Open University Course) (D,G,H)</u> 25 min Snd Col Source: H&R (P) AS (R) (*)</p> <p><u>Case Study: Designing in Plastics (From Open University Course The Man-Made World) (E)</u> 25 min Snd B/W Source: H&R (P) AS (R) (*)</p> <p><u>That's Not Wood, Lady (E)</u> 15 1/2 min Snd Col Source: SFL (*) (P)</p> <p><u>The Way it is with Man-Made Fibers (E)</u> 27 min Snd Col Source: DDC (*) (FL)</p> <p><u>Forever Living Forests (H)</u> 25 1/2 min Snd Col Source: ASF, CRA (*) (FL)</p> <p><u>Composites (From Open University Course The Man-Made World (I)</u> 25 min Snd B/W Source: H&R (P) AS (R) (*)</p>	

SUBJECT AREA 36 - APPLICATIONS: DESIGN WITH MATERIALS.

PRINT	MEDIA	
	16 mm FILM	SUPER 8 FILM
<p><u>Materials (A)</u> Text from Open University Course: <u>The Man-Made World</u> 36 pp Approx. 1 hr class study Source: H&R (*) (P)</p> <p><u>Structures and Microstructures (A)</u> Text from Open University Course: <u>The Man-Made World</u> 40 pp Approx 1 hr class study Source: H&R (*) (P)</p> <p><u>Application and Design of Ductile Iron Drawing and Forming Dies, The (B,C)</u> Research review module, 8 pp Source: INCO (**) (F)</p> <p><u>Car Body (B,E) (Section of Open University Course)</u> Approx 6 hr module, 136 pp Source: H&R (*) (P)</p> <p><u>Development of a Cast Monoform Turbine Wheel, The (B) (Case Study)</u> 30 pp, Order No. ECL 183 (From Engineering Case Library) Source: ECP (**) (P)</p> <p><u>Development of a New Drill Steel (B) (Case Study)</u> 20 pp, Order No. ECL 94 (From Engineering Case Library) Source: ECP (*) (P)</p> <p><u>Fracture of a Marine Gear Rim (B) (Case Study)</u> 31 pp, Order No. ECL 80 (From Engineering Case Library) Source: ECP (*) (P)</p>	<p><u>The Car Body: Materials and Design (A)</u> (Section of Open University Course) 25 min Snd B/W Source: H&R (P) & AS (R) (*)</p> <p><u>Fighting Fire with Science I & II (2 separate films) (A)</u> 30 min (ea) Snd Col Source: Klein (*) (FL)</p> <p><u>Flexibility Underground (A)</u> 25 min Snd Col Source: Armco (*) (FL)</p> <p><u>High Temperature Materials HQ4 (A)</u> 12 min Snd Col Source: NASA (**) (FL)</p> <p><u>Making a Microscope (A)</u> (Section of Open University Course) 25 min Snd Col Source: H&R (P) & AS (R) (*)</p> <p><u>Pioneering for Tomorrow (A)</u> 28 1/2 min Snd B/W Source: DA (*) (FL)</p> <p><u>The Car Body: From Wood to Steel (B,H)</u> (Section of Open University Course) 25 min Snd Col Source: H&R (*) (P)</p> <p><u>Caststeel - "Engineering Flexibility" (B)</u> 30 min Snd Col Source: SFS (*) (FL)</p> <p><u>Cast Iron - Biography of a Metal (B)</u> 27 min Snd Col Source: BM (*) (FL)</p>	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>New Materials for Spare Parts (A)</u> AT only No time given Source: ACS (*) (P)	<u>Introduction to Engineering Materials (A Course) (A)</u> 23 VTs each 1 hour Snd B/W 3/4" Cassette Source: GSI (*) (RP)	<u>Selection of Materials (A lab experiment) (A)</u> Objective: To study the factors that enter into the selection of materials in design and to become familiar with the reference sources available in the library. One of 23 lab experiments offered in NSF Report and under Grant GY-4709 and available from author. Source: JR (*) (F)
<u>Properties and Relevance of Materials (A)</u> 29 Slids 40 min tape Source: Ruoff & PC (*) (P)	<u>Metric System (A)</u> Part 1-Metric Orientation 45 min Part 2-Metric Conversion 38 min Part 3-Understanding SI Units 30 min Part 4-Designing for Metric Manufacturing 45 min Part 5-Planning and Implementation 48 min 5 VT's Snd Col 3/4" Cassette Source: SME (*) (RP)	
<u>Strength in Shape--Through Steel Casting Design (B)</u> FS Col 11 min Snd/disc Source: SFS (*) (FL)	<u>Strength of Materials (A Course for Engineers) (A)</u> 22 VT's each 1 hour Snd B/W 3/4" Cassette 149 page study book Source: GSI (*) (RP)	
<u>Fiberglass Reinforced Plastics (D,E,I)</u> 38 Slids No tape Col Source: SPE (**) (FL)	<u>Plastics (E)</u> 30 min Snd Col 3/4" Cassette Source: SME (*) (RP)	
<u>The Designer's Knowledge of Polymers (Section of Open University Course) (E)</u> 20 min tape only Source: H&R (*) (P)		
<u>Foam Construction (E)</u> 36 Slids No tape Col Source: SPE (*) (FL)		
<u>Foams in Packaging (E)</u> 27 Slids No tape Col Source: SPE (*) (FL)		
<u>Polysulfide Elastomers (E)</u> 10 Slids No tape Source: SPE (**) (FL)		
<u>Rubber Elastomers (E)</u> 29 Slids No tape Source: SPE (*) (FL)		

SUBJECT AREA 36 - APPLICATIONS: DESIGN WITH MATERIALS

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>Material-Selection and Casting Problems of a High-Vacuum Coupling (B) (Case Study)</u> 49 pp, Order No. ECL 59 (From Engineering Case Library) Source: ECP (**) (P)</p> <p><u>Pickle Pasteurizer Shaft Failure (B) (Case Study)</u> 12 pp, Order No. ECL 152 (From Engineering Case Library) Source: ECP (*) (P)</p> <p><u>Problem of the Perverse Pinion (B) (Case Study)</u> 18 pp, Order No. ECL 135 (From Engineering Case Library) Source: ECP (*) (P)</p> <p><u>Redesign of a Liquid Nitrogen Container (B,C,E) (Case Study)</u> 35 pp, Order No. ECL 72 (From Engineering Case Library) Source: ECP (*) (P)</p> <p><u>Milk Bottle (D,E,G) (Section of Open University Course)</u> Approx 6 hr module, 80 pp Source: H&R (*) (P)</p> <p><u>The Flippin' Motorbike (E) (Case Study)</u> 11 pp, Order No. ECL 148 (From Engineering Case Library) Source: ECP (*) (P)</p>	<p><u>Drama of Steel (B)</u> 34 min Snd Col Source: BM (*) (FL)</p> <p><u>Giant Step (B)</u> 12 min Snd Col Source: WEC (*) (FL)</p> <p><u>Case Studies: Plastic & Steel (B,E)</u> (From Open University Course The Man-Made World) 25 min Snd B/W Source: H&R (P) AS (R) (*)</p> <p><u>Men, Steel and Earthquakes (B)</u> 28 min Snd Col Source: AISC (*) (FL)</p> <p><u>Paths of Steel (B)</u> 26 min Snd Col Source: USS (*) (FL)</p> <p><u>Profiles of Steel (B)</u> 26 min Snd Col Source: MTPS (*) (FL)</p> <p><u>Solving Metal Joining Problems through Brazing (B,C)</u> 17 min Snd Col Source: PSU (**) (R)</p> <p><u>Stainless Steel: Stainless Steel Tailored to the Job (one of a series) (B)</u> 40 min Snd Col Source: RSC (*) (FL)</p> <p><u>These Men Know the Steel Business (B)</u> 20 min Snd Col Source: CTC (*) (FL)</p>	

SUBJECT AREA 36 - APPLICATIONS: DESIGN WITH MATERIALS

PRINT	MEDIA	
	16 mm FILM	SUPER 8 FILM
<u>Plastic Pipe Saddle Design</u> (E) (Case Study) 43 pp, Order No. ECL 126 (From Engineering Case Library) Source: ECP (*) (P)	<u>Trip Steel (B)</u> 11 min Snd Col Source: AEC (**) (FL) <u>Aluminum (C)</u> 28 min Snd Col Source: MTPS (*) (FL) <u>Aluminum: Metal of Many Faces (C)</u> 20 min Snd Col Source: BM (*) (FL) <u>Aluminum on the March (C)</u> 28 min Snd Col Source: RMC (*) (FL) <u>Chemistry of Aluminum (C)</u> 16 min Snd Col Source: RMC (*) (FL) <u>Copper! (C)</u> 37 min Snd Col Source: Assoc. Films (*) (FL) <u>Copper Mining in Zambia (C)</u> 25 min Snd Col Source: AMC (*) (FL) <u>Copper - Mining, Smelting, and Refining (C)</u> 35 min Snd Col Source: MSU (*) (R) <u>Copper - Oldest Modern Metal (C)</u> 27 min Snd Col Source: BM (*) (FL) <u>Extraordinary World of Zinc (C)</u> 27 min Snd Col Source: ASF, BM, ZII (*) (FL)	

SUBJECT AREA 36 - APPLICATIONS: DESIGN WITH MATERIALS

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Superconducting Magnets (C)</u> 12 1/2 min Snd Col Source: AEC (**) (FL)</p> <p><u>Engineering with Glass (D,G)</u> 28 min Snd Col Source: ASF (*) (FL)</p> <p><u>Fahrenheit 3300 (D)</u> 28 min Snd Col Source: BM (*) (FL)</p> <p><u>Futures in Concrete (D)</u> 14 min Snd Col Source: ICC (*) (FL)</p> <p><u>Milk Bottles, A Choice of Containers (Section of Open University Course) (D,G,H)</u> 25 min Snd Col Source: H&R (P) AS (R) (*)</p> <p><u>Case Study: Designing in Plastics (From Open University Course The Man-Made World) (E)</u> 25 min Snd B/W Source: H&R (P) AS (R) (*)</p> <p><u>Origin and Synthesis of Plastics Materials (E,I)</u> 16 min Snd B/W Source: PSU (**) (R)</p> <p><u>Plastics: Industrial Processes and Products (E)</u> 24 min Snd Col Source: PSU (**) (R)</p> <p><u>Polysulfide Base Industrial Sealants (E)</u> 14 min Snd Col Source: Thiokol (*) (FL)</p>	

SUBJECT AREA 36 - APPLICATIONS: DESIGN WITH MATERIALS

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Polysulfides for Industry (E)</u> 18 min Snd Col Source: Thiokol (*) (FL)</p> <p><u>Rubber by Design (E)</u> 27 min Snd Col Source: SFL (*) (FL)</p> <p><u>That's Not Wood, Lady (E)</u> 15 1/2 min Snd Col Source: SFL (*) (P)</p> <p><u>Composites (From Open University Course The Man-Made World (I)</u> 25 min Snd B/W Source: H&R (P) AS (R) (*)</p> <p><u>Looking at Materials #2: Composites (I)</u> 30 min Snd B/W Source: PSU (**) (R)</p>	

SUBJECT AREA 37 -- APPLICATIONS: FUNCTIONS (STRUCTURAL)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<p><u>Materials (A)</u> Text from Open University Course: <u>The Man-Made World</u> 36 pp Approx. 1 hr class study Source: H&R (*) (P)</p> <p><u>Structures and Microstructures (A)</u> Text from Open University Course: <u>The Man-Made World</u> 40 pp Approx. 1 hr class study Source: H&R (*) (P)</p> <p><u>Brittle Fracture and Structural Failure of Liberty Ships During WW II (B)</u> (Case Study) 57 pp, Order No. ECL 1007 (From Engineering Case Library) Source: ECP (*) (P)</p> <p><u>Chemistry of Macromolecules (E)</u> One of 3 modules in an ACS Interactive Course designed primarily for continuing education. Course title: <u>Polymer Science and Technology</u> Approx. 3-4 week's study time (128 pp of text plus some 50 pp of work assignments) Source: ACS (**) (P)</p>	<p><u>Properties of Materials (A)</u> Series of six films 1. <u>Loads on Structures</u> 2. <u>Behavior of Structural Materials</u> 3. <u>Tensile and Compressive Structures</u> 4. <u>Beams and Frames</u> 5. <u>Grids and Plates</u> 6. <u>Membranes and Shells</u> 20 min (ea.) Snd Col Source: McGraw Hill (*) (P)</p> <p><u>Strength of Materials Laboratory (A)</u> Series of ten films 1. <u>Deformations and Strains</u> 2. <u>Loads and Stresses</u> 3. <u>Tension Test, Part I</u> 4. <u>Tension Test, Part II</u> 5. <u>Compression and Buckling</u> 6. <u>Bending</u> 7. <u>Torsion</u> 8. <u>Hardness and Impact Tests</u> 9. <u>Creep</u> 10. <u>Fatigue</u> 10 - 15 min Snd Col Source: McGraw Hill (*) (P)</p> <p><u>A World of Structures (A)</u> 20 min Snd Col Source: McGraw Hill (*) (R)</p> <p><u>Advanced Technology in Specialty Steel (B)</u> 14 min Snd Col Source: UCC (**) (FL)</p> <p><u>Case Studies: Plastic & Steel (B,E)</u> (From Open University Course <u>The Man-Made World</u>) 25 min Snd B/W Source: H&R (P) AS (R) (*)</p> <p><u>Men, Steel and Earthquakes (B)</u> 28 min Snd Col Source: AISC (*) (FL)</p>	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Nature and Structure of Materials (A)</u> 35 Slids 50 min tape Source: Ruoff & PC (*) (P)	<u>Basic Strength and Mechanics of Materials for Draftsmen and Designers (A Course) (A)</u> 20 VT's each 1-hour in length 3/4" Cassette Snd B/W 111 page study book Source: GSI (*) (RP)	
<u>Properties and Relevance of Materials (A)</u> 29 Slids 40 min tape Source: Ruoff & PC (*) (P)	<u>Mechanical Behavior of Solids (A Course) (A)</u> 24 VT's each 50 min Snd B/W 3/4" Cassette & 2" Quad Source: UIUC (*) (P)	
<u>Fiberglass Reinforced Plastics (D,E,I)</u> 38 Slids No tape Col Source: SPE (**) (FL) +	<u>Structure-Sensitive Properties (Lesson 2) Introduction to Materials Science (set of 16 VT's) (B,C)</u> Approx. 30 min Snd Col 3/4" Cassette Source: UWEX (*) (P)	
<u>A Breakdown in Plastics (E)</u> AT only No time given Source: ACS (*) (P)		
<u>New Dimensions for Polymers (E)</u> AT only No time given Source: ACS (*) (P)		

SUBJECT AREA 37 - APPLICATIONS: FUNCTIONS (STRUCTURAL)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Paths of Steel (B)</u> 26 min Snd Col Source: USS (*) (FL)</p> <p><u>Profiles of Steel (B)</u> 26 min Snd Col Source: MTPS (*) (FL)</p> <p><u>Aluminum (C)</u> 28 min Snd Col Source: MTPS (*) (FL)</p> <p><u>Aluminum: Metal of Many Faces (C)</u> 20 min Snd Col Source: BM (*) (FL)</p> <p><u>Aluminum on the March (C)</u> 28 min Snd Col Source: RMC (*) (FL)</p> <p><u>Chemistry of Aluminum (C)</u> 16 min Snd Col Source: RMC (*) (FL)</p> <p><u>Copper! (C)</u> 37 min Snd Col Source: Assoc. Films (*) (FL)</p> <p><u>Futures in Concrete (D)</u> 14 min Snd Col Source: ICC (*) (FL)</p> <p><u>Leveling Warped Concrete Pavement (D)</u> 7 min Snd Col Source: NDWD (*) (FL)</p> <p><u>Forever Living Forests (H)</u> 25 1/2 min Snd Col Source: ASF, CRA (*) (FL)</p>	

SUBJECT AREA 37 - APPLICATIONS: - FUNCTIONS (STRUCTURAL)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Looking at Materials: #2: Composites (I)</u></p> <p>30 min Snd B/W</p> <p>Source: PSU</p> <p>(**) (R)</p>	

SUBJECT AREA 38 - APPLICATIONS: FUNCTIONS (ELECTRICAL, MAGNETIC, OPTICAL)

PRINT	MEDIA	
	16 mm FILM	SUPER 8 FILM
<u>Platinum - The Metal, Its Properties and Applications (C)</u> Research review module, 28 pp Source: INCO (**) (F)	<u>Natural Gas Fuel Cell (A)</u> 20 min Snd Col Source: BUG (*) (FL)	
<u>Failure of a Rotating Mirror (D,6) (Case Study)</u> 28 pp, Order No. ECL 30 (From Engineering Case Library) Source: ECP (*) (P)	<u>Silicon and Its Compounds (A)</u> 14 min Snd Col Source: PSU (**) (R)	
<u>Solar Cells (F)</u> (Section of Open University Course) Approx 6 hr module, 136 pp Source: H&R (*) (P)	<u>Story of the Modern Storage Battery (A)</u> 27 min Snd Col Source: ASF, BM (*) (FL)	
	<u>Copper - Mining and Smelting (C)</u> 10 min Snd Col Source: BF (*) (R)	
	<u>Copper Network (C)</u> 27 min Snd Col Source: BM (*) (FL)	
	<u>Copper - Oldest Modern Metal (C)</u> 27 min Snd Col Source: BM (*) (FL)	
	<u>Looking at Materials #5: Ceramics (D)</u> 30 min Snd B/W Source: PSU (**) (R)	
	<u>Brattain on Semiconductor Physics (F)</u> 30 min Snd B/W Source: BTL (**) (FL)	
	<u>Breakthrough (F)</u> 9 min Snd Col Source: WEC (*) (FL)	
	<u>Genesis of the Transistor (F)</u> 15 min Snd Col Source: BTL (*) (FL)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<p>Liquid Crystals: A Bright Promise (K)</p> <p>AT only No time given Source: ACS (*) (R)</p>		

SUBJECT AREA 38 - APPLICATIONS: FUNCTIONS (ELECTRICAL, MAGNETIC, OPTICAL)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>I. C. A Shrinking World (F)</u> 16 min Snd Col Source: BTL (*) (FL)</p> <p><u>Integrated Electronics-A New Art (F)</u> 16 min Snd Col Source: BTL (*) (FL)</p> <p><u>An Interview with the Transistor's Inventors (F)</u> 14 min Snd Col Source: BTL (*) (FL)</p> <p><u>Micro (F)</u> 14 min Snd Col Source: MTPS, WEC (*) (FL)</p> <p><u>Modern Transistor Fabrication (F)</u> 35 min Snd Col Source: BTL (*) (FL)</p> <p><u>Principles of the Transistor (F)</u> 21 min Snd B/W Source: PSU (*) (R)</p> <p><u>Printed Circuit Story (F)</u> 16 min Snd Col Source: PSU (*) (R)</p> <p><u>Solar Cells (Section of Open University Course) (F)</u> 25 min Snd Col Source: H&R (P) AS (R) (*)</p> <p><u>Transistor (F)</u> 27 min Snd Col Source: BTL (*) (FL)</p> <p><u>The Transistor (F)</u> 9 min Snd B/W Source: BTL (*) (FL)</p>	

SUBJECT AREA 39 - APPLICATIONS: FUNCTIONS (SURFACE: FRICTION, WEAR, CORROSION)

PRINT	MEDIA	
	16 mm FILM	SUPER 8 FILM
<u>Corrosion Testing of Electrodeposited Coatings (B,C)</u> Research review module, 8 pp Source: INCO (**) (F)	<u>Frontiers of Friction (B,C)</u> 18 min Snd Col Source: Shell (*) (FL)	
<u>Guidelines for Selection of Marine Materials (B,C)</u> Research review module, 40 pp Source: INCO (**) (F)	<u>Grease, The Magic Film (B,C)</u> 26 min Snd Col Source: NLGI (*) (FL)	
<u>Heat-resistant Castings, Corrosion-resistant Castings Their Engineering Properties and Applications (B,C)</u> Research review module, 60 pp Source: INCO (**) (F)	<u>Hot Dip Galvanizing After Fabrication (B)</u> 12 min Snd Col Source: AHGGA (*) (FL)	
<u>Materials Degradation (B,C)</u> (Volume 5 of a five-part course on Materials Technology) Workbook and VT's 5 sessions, approx. 1 week's study Source: SL (*) (SA)	<u>No Trouble At All (B)</u> 32 min Snd Col Source: TC (*) (FL)	
<u>Metals and Corrosion (B,C)</u> Research review module, 12 pp Source: INCO (**) (F)	<u>Stainless Steel: Stainless Steel Tailored to the Job (one of a series) (B)</u> 40 min Snd Col Source: RSC (*) (FL)	
<u>Ocean Engineering Hardware Requires Copper-Nickel Alloys (B,C)</u> Research review module, 36 pp Source: INCO (**) (F)	<u>Stainless Steel: Care and Maintenance (one of a series) (B)</u> 27 min Snd Col Source: RSC (*) (FL)	
<u>Problem of the Perverse Pinion (B) (Case Study)</u> 18 pp, Order No. ECL 135 (From Engineering Case Library) Source: ECP (*) (P)	<u>Story of Stainless Steel (B)</u> 27 min Snd Col Source: MTPS (*) (FL)	
<u>Resistance of Nickel and High Nickel Alloys to Corrosion by Sulphuric Acid (B,C)</u> Research review module, 44 pp Source: INCO (**) (F)	<u>Stress Corrosion in Stainless Steel (B)</u> 13 min Snd Col Source: OSU (**) (R)	
	<u>Turning of High Speed Steel (B)</u> 7 min Stl B/W Source: PSU-EC (**) (R)	
	<u>Zinc Controls Corrosion (B,C)</u> 38 min Snd Col Source: MTPS (*) (FL)	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>Corrosion Series (A)</u> 17 Slids No tape Source: ASM (**) (P)	<u>Materials Degradation (Volume 5 of a five-part course on Materials Technology) (B,C)</u> VT's and Workbook 5 sessions, approx. 1 week's study Source: SL (*) (SA)	
<u>Electro Chemical Properties (A)</u> <u>Corrosion and Protection Against Corrosion</u> 22 Slids 46 min tape Source: Ruoff (*) (P)	<u>Corrosion in Hamilton - A TV Field Trip (B,C)</u> Approx. 40 min Snd B/W 3/4" Cassette Source: MBI (*) (P)	
<u>Corrosion (E)</u> 14 Slids No tape Col Source: SPE (**) (FL)		
<u>Weathering of Plastics (E)</u> 20 Slids No tape Source: SPE (*) (FL)		

SUBJECT AREA 39 - APPLICATIONS: FUNCTIONS (SURFACE: FRICTION, WEAR, CORROSION)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
	<p><u>Corrosion in Action: (C)</u> Series of three films 1. <u>Nature of Corrosion</u> 20 min 2. <u>Corrosion Currents</u> 26 min 3. <u>Passivity</u> 17 min Snd Col Source: Rothacker (*) (FL)</p> <p><u>Stress Corrosion in Magnesium Base Alloys (C)</u> 18 min Snd Col Source: OSU (**) (R)</p> <p><u>Carbon and Its Compounds (D)</u> 10 min Snd B/W Source: PSU (*) (R)</p> <p><u>For Every Wheel That Rolls (E)</u> 26 min Snd Col Source: ASF (*) (FL)</p>	

SUBJECT AREA 40 - APPLICATIONS: FUNCTIONS (OTHER: THERMAL, NUCLEAR, BIOLOGICAL)

MEDIA		
PRINT	16 mm FILM	SUPER 8 FILM
<u>Metal Implants for Orthopedic and Dental Surgery (B,J)</u> 55 page report, 47 figures and tables, related to film <u>Ceramics and Metals in Medical Prosthetics (q.v.)</u> Source: MCIC (**) (P) <u>Platinum - The Metal, Its Properties and Applications (C)</u> Research review module, 28 pp Source: INCO (**) (F) <u>Ceramics for Prosthetic Applications (D,J)</u> 30 page report, 6 figures and tables, related to film <u>Ceramics and Metals in Medical Prosthetics (q.v.)</u> Source: MCIC (**) (P)	<u>Nuclear Radiations - Uses in Industry (A)</u> 15 min Snd B/W Source: PSU (*) (R) <u>Nuclear Reactor (A)</u> 9 min Snd Col Source: PSU (**) (R) <u>Research into Controlled Fusion (A)</u> 55 min Snd B/W Source: PSU (**) (R) <u>Ceramics and Metals in Medical Prosthetics (B,C,D,J)</u> 12 min Snd Col Source: MCIC (*) (RP) <u>Carbon and Its Compounds (D)</u> 10 min Snd B/W Source: PSU (*) (R) <u>Heat and Its Control (D)</u> 20 min Snd Col Source: BM (*) (FL) <u>A Problem of Shock (D,G)</u> 9 min Snd Col Source: ASM (*) (R) <u>Artificial Gill (E,J)</u> 13 min S11 Col Source: GE (*) (FL) <u>Fire Retardant Treated Wood (H)</u> 20 min Snd Col Source: AWPI (*) (FL) <u>Initial Events of Blood Contact with Foreign Materials (J)</u> 20 min S11 Col Source: Calspan (*) (FL) Author: Dr. Robert Dutton	

MEDIA		
SLIDE/TAPE	VIDEO TAPE	OTHER
<u>The Designer's Knowledge of</u> <u>Polymers (Section of Open</u> <u>University Course) (E)</u> 20 min tape only Source: H&R (*) (P) <u>Heat Sealing of Plastic Sheet</u> <u>Material (E)</u> 28 Slids No tape Col Source: SPE (*) (FL)	<u>Polymer Science (E)</u> <u>Herman Mark presents the Funda-</u> <u>mentals of Polymer Science</u> 3 VT's 80 min total Snd Col 3/4" Cassette Source: HRL (*) (P)	

NAMES AND ADDRESSES OF SOURCES

AAAS

American Association for the Advancement
of Science
1515 Massachusetts Avenue, N.W.
Washington, DC 20005

ACA

Aluminum Company of America
1246 Alcoa Building
Pittsburgh, PA 15219

ACC

Appleton-Century-Crofts
440 Park Avenue, South
New York, NY 10016

ACCC

Advisory Council on College Chemistry
701 Welch Road
Palo Alto, CA 94034

ACS

American Chemical Society
Educational Activities Department
1155 Sixteenth Street, N.W.
Washington, DC 20026

AEC

(Formerly Atomic Energy Commission
Now Energy Research and Development
Administration
ERDA-TIC Film Library
P.O. Box 62
Oak Ridge, TN 37830

AGA

American Gas Association
Educational Services
1515 Wilson Boulevard
Arlington, VA 22209

AHDGA

American Hot Dip Galvanizers Assoc., Inc.
Suite 504
1000 Vermont Avenue, N.W.
Washington, DC 20005

AIAA

American Institute of Aeronautics
and Astronautics
1290 Avenue of the Americas
New York, NY 10019

AIM

Association Instructional Materials
600 Madison Avenue
New York, NY 10022

AIS

American Iron and Steel Institute
150 East 42nd Street
New York, NY 10017

AISC

American Institute of Steel Construction, Inc.
Department of Educational Services
101 Park Avenue
New York, NY 10017

AJP/AIP

American Journal of Physics
American Institute of Physics
335 East 45th Street
New York, NY 10017

ALSC

Allegheny Ludlum Steel Corporation
1246 Alcoa Building
Pittsburgh, PA 15219

AMC

American Metal Climax, Inc.
1270 Avenue of the Americas
New York, NY 10020

Armco

Armco Steel Corporation
Attn: Librarian, General Office
Film Library
P.O. Box 600
Middletown, OH 45042

AS

Association Sterling
512 Burlington Avenue
La Grange, IL 60525

ASF

Association-Sterling Films
Executive Offices
866 Third Avenue
New York, NY 10022

ASM

American Society for Metals
Career Development Office
Metals Park, OH 44073

Assoc. Films

Association Films
600 Madison Avenue
New York, NY 10022

Atomics Intl.

Atomics International
Division of North American Aviation
P.O. Box 309
Canoga Park, CA 91304

AWPI

American Wood Preservers Institute
Attn: Visual Aids
1651 Old Meadow Road
McLean, VA 22101

Beckman

2500 Harbor Boulevard
Fullerton, CA 92634

BF

Britannica Films
Public Relations Department
1150 Wilmet Avenue
Wilmett, IL 60091

BFA

Bailey Film Associates
11559 Santa Monica Boulevard
Los Angeles, CA 90025

BSO

Bethlehem Steel Corporation
See Addresses from Modern Talking
Picture Service

BTL

Bell Telephone Laboratories
Film Library
Murray Hill, NJ 07971

BUG

Brooklyn Union Gas
Public Relations and Advertising Department
195 Montague Street
Brooklyn, NY 11201

Bureau of Mines

Bureau of Mines
United States Department of the Interior
Motion Pictures
4800 Forbes Avenue
Pittsburgh, PA 15213

B&W

Babcock & Wilcox
Tubular Products Division
P.O. Box 401
Beaver Falls, PA 15010

Calspan

(Technical Library)
Calspan Corporation
P.O. Box 235
Buffalo, NY 14221

Alternate Source: Heart & Lung Association
Bethesda, MD

Chase

Chase Brass & Copper Company
Advertising Department
20600 Chagrin Boulevard
Cleveland, OH 44122

CIC

Cobalt Information Center
Battelle Memorial Institute
505 King Avenue
Columbus, OH 43201

CL

Professor Claude Lupis
Metallurgy and Materials Science Dept.
Carnegie-Mellon University
Pittsburgh, PA 15213

Coe

Coe Advertising
7 Hooper Street
Utica, NY 13501

CRA

California Redwood Association
617 Montgomery Street
San Francisco, CA 94111

CSC

Communication Skills Corporation
P.O. Box 684
Fairfield, CT 06430

CTC

Carpenter Technology Corporation
Box 662
Reading, PA 19603

DA

Department of the Army
See Address for your Area

First United States Army
Attn: Audio-Visual Support Center
Fort George G. Mead, MD 20755

Fifth United States Army
Attn: Audio-Visual Support Center
Fort Sam Houston, TX 78234

Sixth United States Army
Attn: Audio-Visual Support Center
Presidio of San Francisco
San Francisco, CA 94129

Military District of Washington
Attn: Audio-Visual Support Center
Washington, DC 20315

DDC

E. I. duPont de Nemours and Co., Inc.
Motion Picture Section
Advertising Department
1007 Market Street
Wilmington, DE 19858

Dow

Dow Chemical Company
Film Library
Audio-Visual Center
2030 Building
Midland, MI 48640

EBEC

Encyclopedia Britannica Education
425 North Michigan Avenue
Chicago, IL 60611

224

ECP

Engineering Case Program
Room 506
Stanford University
Stanford, CA 94305

EDC

Education Development Center
39 Chapel Street
Newton, MA 02160

EFL

Ealing Films
The Ealing Corporation
2225 Massachusetts Avenue
Cambridge, MA 02140

EWAC

Eutectic Welding Alloy Company
40-40 172nd Street
Flushing, NY 11358

FSC

Fisher Scientific Company
Films, Advertising Department
711 Forbes Avenue
Pittsburgh, PA 15219

FSI

Firth Seerling, Inc.
3113 Forbes Avenue
Pittsburgh, PA 15230

GE

General Electric Company
Research & Development Center
Editorial and Audiovisual Unit
P.O. Box 8
Schenectady, NY 12301

GS1

Genesys Systems, Inc.
1121 East Meadow Drive
Palo Alto, CA 94303

Hacker

Hacker Instruments, Inc.
Box 646
West Caldwell, NJ 07006

HJM

Professor H. J. McQueen
Engineering College
Concordia University
Montreal, Canada

Hoeg

Hoeganas Corporation
Riverton, NJ 08077

HPMC

Hamilton Precision Metals Company
Precision Metals Division
Attn: Mrs. Dee Charles
Lancaster, PA 17604

H&R

Harper & Row
10 East 53rd Street
New York, NY 10022

Huley

J. Huley Associates, Inc.
P.O. Box 910
Boca Raton, FL 33432

IBM

International Business Machine Corp.
See Address for your Area

412 Peachtree Street, N.W.
Atlanta, GA 30308

1411 Slocum Street
Dallas, TX 75207

1687 Elmhurst Road
Elk Grove Village, IL 60007

1145 North McCadden Place
Los Angeles, CA 90038

2323 New Hyde Park Road
New Hyde Park, NY 11040

ICC

Ideal Cement Company
Public Relations Department
821 Seventeenth Street
Denver, CO 80202

INCO

The International Nickel Co., Inc.
67 Wall Street
New York, NY 10005

ISC

Inland Steel Company
30 West Monroe Street
Chicago, IL 60603

IWF

Institut für Wissenschaftlichen Film
Nonnensteig 72
34 Gottingen
Germany

J&L

Jones & Laughlin Steel Corporation
No. 3 Gateway Center
Pittsburgh, PA 15230

JPL

Jet Propulsion Laboratory
Photographic Services
Film Library
4800 Oak Drive
Pasadena, CA 91103

JR

Professor John E. Ritter, Jr.
Mechanical and Aerospace Engineering Dept.
University of Massachusetts
Amherst, MA 01002

Klein

Walter J. Klein Company
Distribution Director
6301 Carmel Road
Charlotte, NC 28211

LBF

LB Films
3435 Grant Avenue
Corvallis, OR 97330

LIA

Lead Industries Association, Inc.
292 Madison Avenue
New York, NY 10017

L&N

Leeds and Northrup Company
4901 Stenton Avenue
Philadelphia, PA 19144

LONG

Longmans Green
Pinnacles, Harlow
Essex, England

MBI

Professor M. B. Ives
McMaster University
Hamilton, Ontario, Canada

McGraw-Hill

McGraw-Hill Text Films
1221 Avenue of the Americas
New York, NY 10020

MCIC

Metals and Ceramic Information
P.O. Box 8128
Columbus, OH 43201

MLA

Modern Learning Aids
1212 Avenue of the Americas
New York, NY 10036

MLS

Professor Marion L. Shepard
Department of Mechanical Engineering
and Material Science
Duke University
Durham, NC 27706

M&R

Dept. of Energy, Mines & Resources (Canada)
c/o Dr. E. Smith
Physical Metallurgy Department
Ottawa, Canada

MRB

Malaysian Rubber Bureau
From Modern Talking Picture Service
Attn: Client Services
2323 New Hyde Park Road
New York, NY 11040

MRL

Materials Research Laboratory
Room 102
The Pennsylvania State University
University Park, PA 16802

MSU

Michigan State University
Visual Aids Bureau
East Lansing, MI 48823

MTPS

Modern Talking Picture Service
See Address for your Area

412 W. Peachtree Street, N.W.
Atlanta, GA 30308

230 Boylston Street, Chestnut Hill
Boston, MA 02167

122 West Chippewa Street
Buffalo, NY 14202

c/o Pratt Educational Media, Inc.
200 Third Avenue, S.W.
Cedar Rapids, IA 52404

503 North College Street
Charlotte, NC 28202

1687 Elmhurst Road
Elk Grove Village, Illinois
Chicago, IL 60007

9 Garfield Place
Cincinnati, OH 45202

c/o Film Programs, Inc.
2238 Euclid Avenue
Cleveland, OH 44115

1411 Slocum Street
Dallas, TX 75207

c/o Cromar's Modern Films
1200 Stout Street
Denver, CO 80204

15921 W. 8 Mile Road
Detroit, MI 48235

MTPS (continued)

c/o J. P. Lilley & Son, Inc.
2009 North Third Street
Harrisburg, PA 17105

c/o Films Services of Hawaii, Ltd.
716 Cooke Street
Honolulu, HI 96813

86 Weldon Parkway
Maryland Heights
St. Louis, MO 63043

c/o Roa's Films
1696 North Astor Street
Milwaukee, WI 53202

9129 Lyndale Avenue South
Minneapolis, MN 55420

1234 Spruce Street
Philadelphia, PA 19107

910 Penn Avenue
Pittsburgh, PA 15222

16 Spear Street
San Francisco, CA 94105

c/o Photo & Sound Company
1205 North 45th Street
Seattle, WA 98103

c/o Modern-Mass Media, Inc.
315 Springfield Avenue
Summit, NJ 07901
Serves NJ and Southern NY

Suite 4, 2000 L Street
Washington, DC 20036

4084 Westheimer Road
Houston, TX 77027

115 East Michigan Street
Indianapolis, IN 46204

1145 N. McCadden Place
Los Angeles, CA 90038

NAC

National Audiovisual Center
National Archives & Records Service
Washington, DC 20409

NASA

National Aeronautics and Space
Administration Research Center
East Coast: 575 Technology Square
Cambridge, MA 02139

West Coast: 4800 Grove Drive
Pasadena, CA 91103

NASA

National Aeronautics and Space Administration
See Address for your Area

NASA Ames Research Center
Public Affairs Office
Moffett Field, CA 94035

NASA Film Library
National Audiovisual Center (GSA)
Washington, DC 20409

NASA George C. Marshall Space Flight Center
Public Affairs Office
Marshall Space Flight Center, AL 35812

NASA Goddard Space Flight Center
Public Affairs Office
Code 202
Greenbelt, MD 20771

NASA John F. Kennedy Space Center
Public Affairs Office
Code PA-EPB
Kennedy Space Center, FL 32899

NASA Langley Research Center
Langley Station
Public Affairs Office
Mail Stop 154
Hampton, VA 23365

NASA Lewis Research Center
Office of Educational Services
2100 Brookpark Road
Cleveland, OH 44135

NASA Lyndon B. Johnson Space Center
Photographic Technical Lab
Audiovisual Office
Code J-13
Houston, TX 77058

NBS

National Bureau of Standards
Office of Technical Information and
Publications
Washington, DC 20234

NDHD

North Dakota Highway Department
Travel Division
Bismarck, ND 58501

NFBC

National Film Board of Canada
680 Fifth Avenue
New York, NY 10019

NLGI

National Lubricating Grease Institute
4635 Wyandotte Street
Kansas City, MO 64112

OSU

Ohio State University
Film Distribution Supervisor
Department of Photography & Cinema
156 W. 19th Street
Columbus, OH 43210

PC

Packaged Courses
216 Texas Lane
Ithaca, NY 14850

PEI

Phillips Electronic Instruments
Advertising and Sales Promotion
750 South Fulton Avenue
Mount Vernon, NY 10550

Polysar

Polysar, Inc.
1795 West Market Street
Akron, OH 44313

PSU

The Pennsylvania State University
Audio-Visual Services
17 Willard Building
University Park, PA 16802

PSU-EC

The Pennsylvania State University
Audio-Visual Services
Encyclopedia Cinematographica
17 Willard Building
University Park, PA 16802

Purdue

Purdue University
Visual Aids Bureau
Lafayette, IN 47907

RMC

Reynolds Metal Company
Motion Picture Service
P.O. Box 27003
Richmond, VA 23261

RMCS

Royal Military College of Science
Chemistry Branch
Shrivenham, Berks, England

Rothacker

Rothacker, Inc.
241 West 17th Street
New York, NY 10011

RSC

Republic Steel Corp.
224 East 131st Street
Cleveland, OH 44108

Ruoff & PC

Arthur L. Ruoff
Department of Materials Science
and Engineering
Cornell University
Ithaca, NY 14853

Packaged Courses

216 Texas Lane
Ithaca, NY 14850

SETCO

Setco-Audio Visual
4400 St. Vincent Avenue
Webster Groves, MO 63119

SET K

N. MacGregor Rugheimer
Department of Physics
Montana State University
Bozeman, MT 59715

A. J. M. Johnson

Department of Physics
Montana State University
Bozeman, MT 59715

SET Q

A. B. Dick Company
5700 West Touhy Avenue
Chicago, IL 60648

Cambosco Scientific Company

342 Western Avenue
Boston, MA 02181

Ealing Films

2225 Massachusetts Avenue
Cambridge, MA 02140

SET R

Bangkok Unesco Pilot Project for
Chemistry Teaching in Asia
P.O. Box 1425
Bangkok, Thailand

Visual Projects

21 Little Browning
Sydenham Rise
London SE23, England

SET S

Crowell, Collier, and MacMillan
866 Third Avenue
New York, NY 10022

Encyclopedia Britannica Education

425 North Michigan Avenue
Chicago, IL 60611

SET U

Potter's Photographic Applications Co.
160 Herricks Road
Mineola, NY 11501

Association Instructional Materials
600 Madison Avenue
New York, NY 10022

SFL

Shell Film Library
1433 Sadler Circle, W. Drive
Indianapolis, IN 46239

SFOSU

School of Forestry
Oregon State University
Corvallis, OR 97331

SFS

Steel Founders' Society of America
Cast Metals Federation Building
20611 Center Ridge Road
Rocky River, OH 44116

Shell

Shell Oil Company
450 North Meridan Street
Indianapolis, IN 46204

SHEPARD

Professor Marion L. Shepard
Department of Mechanical Engineering
and Materials Science
Duke University
Durham, NC 27706

SL

Sandia Laboratories
Motion Picture Production Division
P.O. Box 5800
Albuquerque, NM 87115

SME

Society of Manufacturing Engineers
Video Tape Department, Technical Division
20501 Ford Road
P.O. Box 930
Dearborn, MI 48128

SPE

Society of Plastics Engineers
Education Chairman
2010 Harvey Road
Wilmington, DE 19810

SSCC

Superior Steel Castings Company
Box 539
Benton Harbor, MI 49022

SUTH

Sutherland Educational Films, Inc.
8425 W. Third Street
Los Angeles, CA 90048

TC

The Timken Company
Mr. D. E. Eagon
Advertising Department
1835 Dueber Avenue, S.W.
Canton, OH 44706

THIOL

Thiokol Chemical Corporation
Film Library
P.O. Box 27
Bristol, PA 19007

THORNE

Thorne Films, Inc.
1229 University Avenue
Boulder, CO 80302

TI

Texas Instruments Learning Center
P.O. Box 5012, Mail Station 54
Dallas, TX 75222

U of A

University of Akron
Director A-V Services
University of Akron
Akron, OH 44304

U of C

University of California
Extension Media Center
2223 Fulton Street
Berkeley, CA 94720

UCC

Universal Cyclops Company
Specialty Steels Division
650 Washington Road
Pittsburgh, PA 15228

UIUC

University of Illinois at Urbana-Champaign
Contact: Charles J. McIntyre
University of Illinois-
Urbana-Champaign
205 S. Goodwin
Urbana, IL 61801

U of Nev

University of Nevada
Audio-Visual Center
Reno, NV 89507

USAF

Air Force Library Center
8900 South Broadway
St. Louis, MO 63125

USBS

United States Bureau of Standards
Office of Technical Information
Washington, DC 20545

USI

U.S.I. Clearing
6499 West 65th Street
Chicago, IL 60638

USS

United States Steel Company
See Address for your Area

Birmingham Film Center

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Fairfield, AL 35064

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UWEX

University of Wisconsin-Extension
Department of Engineering
432 North Lake Street
Madison, WI 53706

VRE

Mishay Research and Education
67 Lincoln Highway
Malvern, PA 19355

WE

Western Electric
Motion Picture Bureau
195 Broadway - Room 1626
New York, NY 10007

WEC

Westinghouse Electric Corporation
Visual Communications Department
Westinghouse Building, Gateway Center
Pittsburgh, PA 15222

Wiley

John Wiley and Sons, Inc.
605 Third Avenue
New York, NY 10016

Wymann

Wymann Gordon Company
Public Relations Department
105 Madison Street
Worcester, MA 01600

ZII

Zinc Institute, Inc.
292 Madison Avenue
New York, NY 10017

LIST OF MEDIA BY MATERIALS CLASSIFICATION

ALL SOLIDS, IN GENERAL (A)

<u>Title</u>	<u>Subject Area</u>	<u>Title</u>	<u>Subject Area</u>
<u>PRINT</u>		<u>16 mm Film Cont.</u>	
Applications of Raman Spectroscopy	11	Electron Microscopy	10,14
Architecture of Solids	7	Electron Microscopy	10,14
Basic Principles in		(Two different films having	
Chemistry-Atomic Structure (4 units)	7	the same title)	
Basic Principles in		Equiaxed Zone Formation in Castings, An Ex-	
Chemistry-Chemical Bonding (5 units)	2	planation Based on Dendritic Remelting	22
Cantilever Flexure		Equilibrium	3
Constant Stress Beams	26	Eutectic Solidification	
Crystallography (6 units)	2,7	in Transparent Materials	10,21,22,26
Crystals of Linear Macromolecules	2,7	Extrusion	22
Fracture Mechanics	26	Extrusion-Materials Flow	22
Fundamentals of Adhesive Bonding, The	24,31	Field Emission of Electrons	29
Materials	8,36,37	Fighting Fire with Science, I & II	35,36
Mechanical Behavior	26	Flexibility Underground	35,36
Modulus of Elasticity-Flexure	26	Flotation (Various Phenomena) (3 films)	15
Phase Diagrams and Microstructure	3,8	Flow Patterns in Floating Liquid	
Phase Equilibria	3,5,7	Zones with Rotating End Members	19
Poissons Ratio-Flexure	26	Formation, Propagation, and	
Principal Strains and Stresses-Flexure	26	Interaction of Solitons	
Processing Materials: How and Why?	21	in Nonlinear Dispersive Media	1
Skin of Concorde, The	21,25,26	Free Energy Curves	
Solids under Stress	26	and Binary Phase Diagrams	3
Spectral Interpretation	11	Gibbs Free Energy: Enthalpy and Entropy	3
Stress and Strain Concentration	26	Hardness Testing (Rockwell)	26
Strong Materials:		High Temperature Materials HQ4	25,26,35,36
Electrons and Waves	1,7,26	Hooke's Law-Young's Modulus	26
Structures and Microstructures	8,36,37	Hydrogen Atom as	
		Viewed by Quantum Mechanics	1
<u>16 mm FILM</u>		Industrial Applications	
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Automated X-Ray Diffractometry	7	Introduction to Lasers	14,28
Bragg Reflection	2	Introduction to Reaction Kinetics	6
Bubble Model of a Metal	7	Introduction to Superconductivity	29
Capacitance	29	Isothermal Sections	
Car Body: Materials and Design, The	36	with Simple Ternary Eutectic	3
Catalysis	31	Isothermal Sections	
Charging and Operating a Cupola	16	with Solid Solutions	3
Chemical Families	2	Laser: A Light Fantastic, The	28
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Colloidal State	18	Laser Safety	28,33
Colloids	18	Lasers Unlimited	14,28
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Solvents for Molecular Structure	8	Looking at Materials #3:	
Concorde	21,25,26	Characterization	8,9,10,11,14
Conquest of Light (Laser), The	14,28	Looking at Materials #4:	
Considering Crystals	2	Crystal Growth in Gels	19
Cryogenics	25	Looking at Materials #6: High Pressure	19,22
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Crystal Kaleidoscope	19	Mass Spectrometry	12,14
Crystals	2,7,19	Materials-Key to Progress	35
Crystals-An Introduction	2,7,26	Minerals Challenge, The	15,16
Crystals and Their Structures	2,7	Molecular Theory of Matter	4
Diffusion of Liquids	3	Natural Gas Fuel Cell	29,38
Dislocations	26	Neutron Activation Analysis	12
Dislocations Illustrated	9,26	Nuclear Magnetic Resonance	9,14
Dislocations in Graphite	10,26	Nuclear Radiations:	
		Uses in Industry	5,32,40

All Solids in General (A) Cont.

<u>Title</u>	<u>Subject Area</u>	<u>Title</u>	<u>Subject Area</u>
<u>16 mm Film Cont.</u>		<u>SUPER 8 FILM</u>	
Nuclear Reactor	32,40	Aston's Mass Spectrograph	12
One in a Million	12,14	Bubble Model of a Crystal (2 films)	2,7
Optical Microscopy	10,14	Comparison of (Various)	
Photoconductive Effect	25,28	Crystal Structures	2,7
Pioneering for Tomorrow	35,36	Crystals: Optical Properties	28
Principles of the Optical Maser	14,28	Growth From a Melt	19
Properties of Materials (6 films)	26,37	Growth in Solution	19
Reading Ternary Phase Diagrams	3	Physical Properties	2,7
Research into Controlled Fusion	32,40	Crystals and X-Ray Diffraction	2,7
Response to Mechanical Shock	26	Diffraction of X-Rays by a Crystal	2,7
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with the Electron Microscope	26	(Two different films having	
Searchlight, The	15	the same title)	
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Silicon and Its Compounds	9,29,38	F.C.C. Crystal Structure, The	2,7
Silver Dendrite		Gibbs Free Energy: Part I Enthalpy	3
Formation in Distilled Water,	10,19	Part II Entropy	3
Solidification of Single		Growth of Crystals	19
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Solutions	3	Maxwell Speed Distribution	1,4
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Stabilities of Floating Liquid		Melting Temperature	
Zones in Simulated Zero Gravity	19	Pure Substance, The	3,25
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Story of the Modern Storage Battery	35,38	Molecular Concept, The	4
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Tensile Testing	26	Bonded Molecule, The	2,6,25
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from Binaries	3	Scintillation Spectrometry	11
Ternary Phase Diagrams	3	Solid/Liquid Equilibrium	3
Terra Incognita	10,14	Solid, Liquid, Gas, Parts I & II	4
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X-Ray Crystallography	7,14	Vapor Pressure (3 films)	4
X-Ray Diffraction	7,14	Wave Packets in Periodic Potentials	7
X-Ray Inspection	9,14	(3 films)	
X-Ray Spectroscopy-The Inside	7,10,14		

All Solids In General (A) Cont.

<u>Title</u>	<u>Subject Area</u>	<u>Title</u>	<u>Subject Area</u>
<u>SLIDE/TAPE</u>		<u>Slide Tape Cont.</u>	
Applications of Raman Spectroscopy	11	Equilibrium and Kinetics (I):	
Aspects of Liquid		Atom Motion and Temperature	4
Scintillation Counting	11,12	Kinetics in an Ideal Gas	4,5
Atomic Arrangements (I):		Internal Energy	4
Crystals and Lattices	2,7	Randomness and Entropy	4
Crystallographic Directions and Planes	2,7	Equilibrium in Chemical Systems	4
Packing of Atoms	2,7	Equilibrium and Kinetics (II):	
Atomic Arrangements (II):		Barometric Formula	4
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Atomic Arrangements (III):		Diffusion	6
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Atomic Arrangements Series	2,7	Special Cases of Diffusion	5
Basic Aspects of Infrared		Applications of Diffusion Theory	5
Spectrophotometry-Instrumentation	11	Nucleation	5,19
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Basic Infrared Spectroscopy (6 units)	11,14	How to Install Strain Gages with	
Basic Principles in		Certified M-Bond 200 Adhesive	26,31
Chemistry-Atomic Structure (4 units)	7	Introduction to	
Basic Principles in		Infrared Spectroscopy, An	11,14
Chemistry-Chemical Bonding	9	Introduction to Radioimmunoassay	11,12,14
Basic Spectrophotometry		Introduction to Ultraviolet-	
in the Clinical Laboratory	11,12,14	Visible Spectroscopy, An	11,12,14
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Hydrogen Atom and Hydrogen-Like Atoms	7	Single Crystals	7
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and Crystals (II):		Polycrystalline Materials	8
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and Condensed Phases	1,2	Quantitative Microscopy	8,18
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Electric Properties:		Photoelastic Models-Case Histories	26
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Hall Coefficient	29	for Infrared Examination	11,14
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Half Cell Potentials	29,31	Examination-KBr Disks	11,14
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All Solids in General (A) Cont.

<u>Title</u>	<u>Subject Area</u>	<u>Title</u>	<u>Subject Area</u>
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Strain Hardening	26	Phase Diagrams, Parts I & II	3
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Second Phase Strengthening	8,26	Multi-Component Phase Diagrams	3
Strengthening Mechanisms (II):		Crystallography (6 units)	2,7
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Superconductivity:		in X-Ray Crystallography	1,2,7
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and Fundamental Concepts	1,29	Solid State Structure	
Collective De Broglie Wave	1,29	and Reactions Series	1,2,3
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Type I vs Type II Superconductors	1,29	Stress and Strain at a Point	26
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a Periodic Lattice	7		
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Structure, Bonding,			
and the Periodic Table	3,4		

METALS & ALLOYS, FERROUS AND NON-FERROUS (B,C)

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Looking at		Composite Materials	8,26
Materials #2: Composites	22,23,26,37	Strengthening Mechanisms (II):	
Origin and Synthesis		Strengthening of Viscous Materials	26
of Plastics Materials	26,36	<u>VIDEO TAPE</u>	
Tensile and Bending Stress in		Non-Metallic Materials	8,24,26
Glass Fiber Reinforced Synthetics	26	<u>OTHER</u> - None	
<u>SUPER 8 FILM</u> - None			

BIOMATERIALS (J)

<u>Title</u>	<u>Subject Area</u>	<u>Title</u>	<u>Subject Area</u>
<u>PRINT</u>		<u>SUPER 8 FILM</u> - None	
Ceramics for Prosthetic Applications	26,33,40	<u>SLIDE/TAPE</u> - None	
Metal Implants for Orthopedic and Dental Surgery	26,33,40	<u>VIDEO TAPE</u> - None	
<u>16 mm FILM</u>		<u>OTHER</u> - None	
Artificial Gilt	33,40		
Ceramics and Metals in Medical Prosthetics	33,40		
Initial Events of Blood Contact with Foreign Materials	33,40		

OTHER (K)

<u>Title</u>	<u>Subject Area</u>	<u>Title</u>	<u>Subject Area</u>
<u>PRINT</u> - None		<u>SLIDE/TAPE</u>	
<u>16 mm FILM</u> - None		Liquid Crystals: A Bright Promise	28,29,38
<u>SUPER 8 FILM</u>		<u>VIDEO TAPE</u> - None	
Le Chatelier's Principle	2	<u>OTHER</u> - None	

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EVALUATION REPORT

Submitted by: _____

Title: _____

Address: _____

1. What suggestions do you have for improving the section on HOW TO USE THE INDEX?

2. Is the key code complete and adequate?

3. What suggestions do you have for improving the INDEX itself (i.e. format, data supplied, source list, alphabetical list, etc.)?

4. Other Comments

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REVIEW QUESTIONNAIRE FOR EXISTING MEDIA

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A. Identification of material under review.

1. Title _____
2. Medium _____
3. Author _____
4. Publisher or Distributor _____

- B. Please write a brief (one paragraph) abstract describing the instructional material being reviewed. The abstract should be suitable for inclusion in the EMMSE INDEX and cover information a prospective user would want to know, including academic level and curricular applicability.

- C. What is your judgment about the quality of the reviewed material with respect to the following categories? Please check all applicable categories.

	Excellent	Good	Average	Below Average	Unacceptable
1. Clarity of Presentation					
2. Continuity of Thought					
3. Accuracy of Statements					
4. Use of Medium					
5. Appropriateness for Intended Level					
6. Completeness within Context					
7. Appropriateness of Style					
8. General Assessment					

B. Please write brief statements about the reviewed material covering the following items.

Use a separate sheet for comments as needed.

1. Does the material improve the prospect for the student's comprehension of the subject?
2. Has the material taken full advantage of the medium?
3. Is the material coherent and self-sustaining?
4. Is it suitable for integration in a learning system?
5. Indicate into which subject area of the EMSE INDEX (i.e. Matrix) this unit might fall.
6. Do you have any other comments about this material?

E. Please comment briefly on the problems that may be or have been encountered by teachers and students in using the materials.

F. Your name _____
(Last) (First) (Middle)
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